

Railway Age

WITH WHICH IS INCORPORATED THE RAILWAY REVIEW

FIRST HALF OF 1927—No. 23

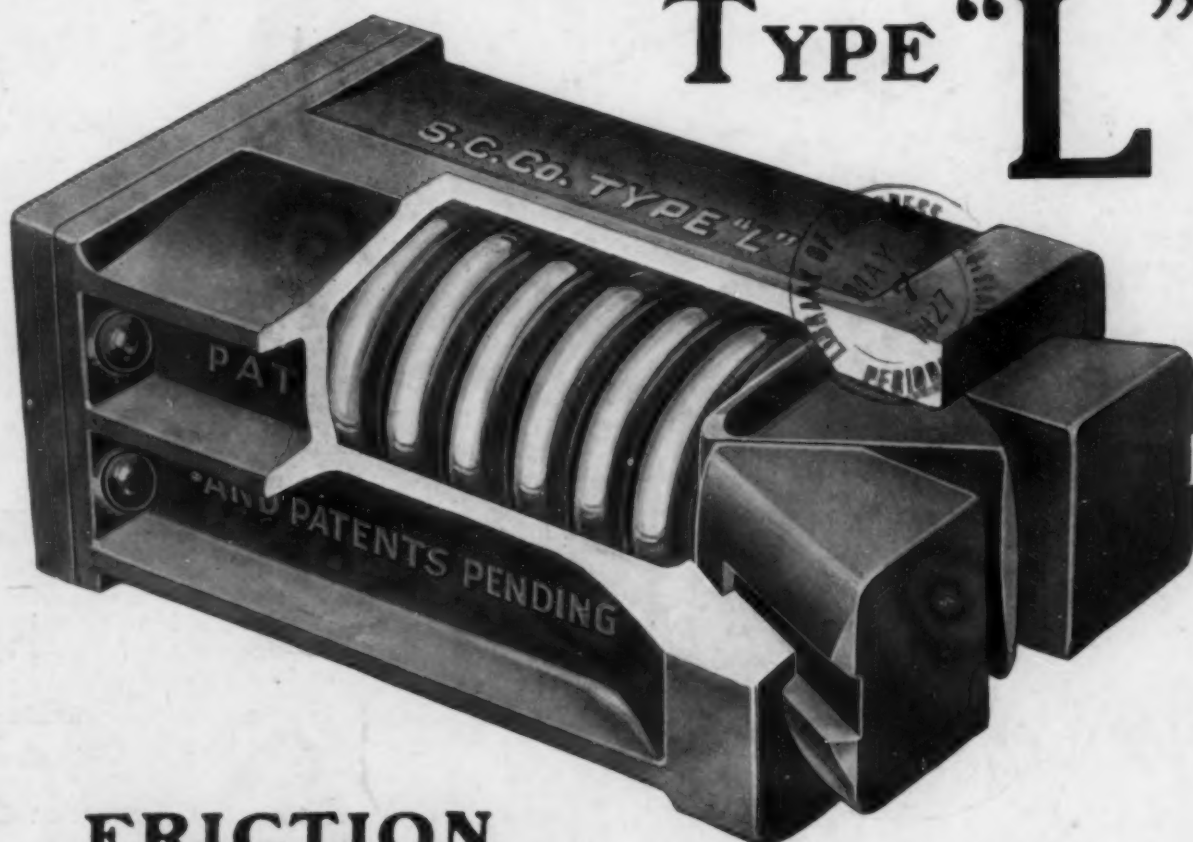
NEW YORK—MAY 7, 1927—CHICAGO

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Railway Age

Vol. 82

May 7, 1927

No. 23



Northern Pacific Yards, St. Paul—Photo by Ewing Galloway

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Railway Age

Vol. 82, No. 23

May 7, 1927

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A Half-Century of Satisfaction

A COMMUTER between a point on Long Island and New York City who recently completed 50 years of travel over the line between those points presents a picture of satisfaction that should go a long way toward destroying the comedic conception of the unhappy, disgruntled and wearied commuter who is never satisfied. Let those whose motto seems to be "commute and complain" take notice of the fact that this man, who covered sufficient mileage to carry him 45 times around the world, wrote after 50 years of commuting that he had in that time never had a serious accident, nor saw one to the train crew. Moreover, he expressed himself as having received throughout that half century the most kind and courteous treatment.

A Uniform Transfer Charge?

THE movement for a uniform charge for transferring freight is gaining in favor, but even its most ardent proponents admit that there are certain difficulties in its application. The cost of transfer varies widely as between different commodities; frequently, the inbound movement in a terminal consists of commodities that cost much less to transfer than the commodities outbound. This is particularly true of Detroit and many of the Ohio and Mississippi river terminals, for example. It is not a simple matter to overcome these difficulties and establish a charge that will be fair and equitable. It has been recommended that the transfer charge, if uniform, be made as low as possible and below actual cost, so as to discourage unnecessary transferring. It is well known that many transfers now made are unnecessary, with all due regard to safety, although a marked improvement has been discernible recently in this respect in some terminals. Proponents of the below-cost transfer charge argue, and with some logic, that if the business of transferring were rendered distinctly unprofitable, there would be a still further decline in the unnecessary transferring of cars.

Shippers and Carriers

EVIDENCE of progress in the transportation field constantly comes to light. Not only the progress to which we have grown accustomed in recent years, the improvement in efficiency of operation, but also the growth of a spirit understanding and real co-operation on the part of both the railroads and the shippers. At a conference on claim matters, held in Chicago recently, one man of long experience with shipping affairs pointed out that, whereas fifteen or twenty years ago the claim policy of a railroad was apt to vary with temperaments

of the freight claim agents, today there was a condition of mutual understanding, uniformity and co-operation. Another man with an equally large experience in shipping matters pointed out that a big claim record used to be the boast of traffic men, but that now they take pride in the smallness of their claim accounts. Such things give some indication of the remarkable improvement in relationships which have taken place in recent years, which mean much in the interests of better service and more efficient and economical operation.

Intelligence Tests

DR. LILLIAN M. GILBRETH in her address on "The Philosophy of Work" at the March meeting of the New York Railroad Club, commented upon the use of psychological tests in industry. Few industries in this country have made any extended study or use of such tests, although Mrs. Gilbreth specifically mentioned the very practical work along these lines done under the direction of Johnson O'Connor of the General Electric Company at Lynn, Mass. We have learned that at least two railroad officers have done some experimenting with intelligence tests. One of them, a supervisor of apprentices, reports considerable success over a limited period in the use of general intelligence tests for all applicants for apprenticeship on his road. An operating officer on another road has given 100 or more psychological tests to applicants for work on one division; he reports good results, although the work is in a purely experimental stage. Obviously, in neither of these cases has any effort been made to go to the elaborate tests made in some of the European industrial plants. If these two American railroad experiments, which are being carried on quietly and without any publicity, have no other result, they will at least have tended to focus closer attention on these two roads on the more careful selection of men for specific tasks or classes of work.

Traffic Development Efforts Continue

NUMEROUS indications of the efforts being made by the railways to develop their freight and passenger business are to be found in the Traffic News columns of the *Railway Age* of the past few weeks. To mention only a few of them, two western roads have established additional ticket offices in New York; another western road has withdrawn from the consolidated ticket office at Chicago, and established an individual office; a number of new and faster trains, both freight and passenger, have been placed in service; new sleeping car services have been inaugurated between a number of points, and the operation of several new agricultural and stock raising instruction trains has been undertaken. These signs of continued efforts towards traffic development are encouraging. The railways have been accused in the past

of being too well satisfied to accept business which came to them, rather than going out and bringing business in. The "come and get it" sales method may be adequate for the ranch eating house, but it will not suffice for the railways because they have competitors who are not content with such easy-going methods of getting business. The common use of high pressure sales methods in other industries has educated the public to the point where often only such attention makes any impression. This is a point which no railway can afford to overlook. Unless they match their methods with the sales methods of their competitors and of other industries, their efforts to retain old business and develop new business will be seriously handicapped.

A Stockholders' Questionnaire

THE General Electric Company sends to its stockholders with their dividend checks a small pamphlet containing interesting material of one kind or another concerning the company's operations. Under date of April 28, it contained brief biographies and portraits of the members of the board of directors. When the dividend checks were mailed to the 46,305 stockholders in January, still another interesting idea was tried in the form of a questionnaire regarding the pamphlets. This the stockholder was assisted in answering by means of a return postcard and replies were received to the number of 7,700. The questions were answered about as follows:

	Yes	No	Occasionally
Do you read them? . . .	85 per cent	10 per cent	5 per cent
Are they too long? . . .	6 " "	94 " "	—
Too condensed? . . .	8 " "	91 " "	1 " "

What subject or type of subject appealed to you? Would you suggest changes and if so, what? The answers to the last yielded numerous valuable suggestions. The large majority indicated in answer to the fourth question satisfaction with the choice of subjects covered in the past. Among the most important documents sent to railroad stockholders are the annual reports and they are the most voluminous sent out in any industry. There is much question as to whether the stockholders read these reports. Has any railroad ever tried a questionnaire in the effort to secure an answer to that question or in order to attract suggestions as to possibilities of making the reports more readable?

If Theaters Can Do It, Why Not the Railroads?

THE Boston & Maine has placed tickets and Pullman reservations on sale by a shopkeeper in Harvard Square, Cambridge, Mass., making purchase convenient for students and staff of Harvard University. It will be interesting to see whether this experiment is successful. The idea of selling tickets through many agencies is one which theaters have utilized to great advantage. They incidentally, unlike the railroad, pass along the cost of the improved service to the consumer. Will the idea work out on the railroad? There are many things to be said in its favor. In the first place, it encourages payment at the time reservations are made. This is an advantage both to passenger and railroad—to the former since he need to have no further concern regarding his accommodations; and to the latter, since it obviates turning away prospective passengers because of space reserved which is never paid for. The simplification of

purchase for the consumer may attract passengers who might otherwise drift to other means of travel. As noted above, the conveniently located agencies for the sale of theater tickets in most of our cities do a thriving business, even for shows where good seats are obtainable at the box offices. To the convenience of completing such a transaction in a hurry may be ascribed their success. If the method gains similar popularity as a means of selling railway tickets and space, it should give a decided impetus to the "merchandising" of transportation.

Effect of Flood on Security Prices

THE buyers and sellers of industrial and railroad stocks have been unable to conceal their perturbation with respect to the possible economic consequences of the flooding of the country back of the Mississippi river levees. The last three or four days of April were marked by sharp declines in the prices of many stocks although the unsettlement of prices was by no means confined to railroads or other companies which might be expected to have suffered from the flood conditions. Nor was the situation helped by the fact that realization of the property losses that were taking place in the flood districts came at a moment when stock prices had reached their highest levels in many years. As one financial writer phrased it "The succession of advances . . . was sufficient in itself to create a weakened speculative structure." The *Railway Age* average of the price of 20 leading railroad stocks stood at 110.91 in the issue of April 23 and in last week's issue it was 110.55, these being the highest figures the average has ever reached. Even as recently as the first week in January the average was 102.23. This week the average stands at 109.31 indicating a drop from last week of 1.24 points. The list of railroad stocks that suffered sharp declines during the last few days of April is an extensive one and includes all varieties of issues. Thus stocks of roads that might be expected to report severe flood damages suffered declines during the last week of April to the following extent; Kansas City Southern, $6\frac{1}{8}$ points; Missouri-Kansas-Texas, $5\frac{3}{8}$; Missouri Pacific, common, $8\frac{3}{8}$; preferred, $7\frac{1}{2}$; Frisco, 3; St. Louis Southwestern, $4\frac{1}{4}$; Texas & Pacific, $5\frac{3}{4}$; and Illinois Central, $2\frac{3}{4}$. However, Norfolk & Western declined $7\frac{1}{4}$ points; Wabash, $6\frac{7}{8}$; Lehigh Valley, 6; Pittsburgh & West Virginia, $5\frac{7}{8}$; New Haven, $4\frac{3}{4}$, and even New York Central, $4\frac{3}{8}$. Considering the manner in which the prices of the stocks of roads away from the flooded districts were affected, it would appear that the stage was set for a reaction of prices which the flood news helped to set in motion. During the present week some of the losses in prices have been recovered. There is no doubt, however, that the financial districts are carefully watching the news from the flood districts and particularly such news as will give indication as to the damage to the railroads and industries in that territory.

Welding and the Railroads

FUSION welding of metals first came into prominence when fostered by the railroads. The rough-and-ready methods originally employed have been greatly improved and during the past ten years the science of welding has gradually passed into the hands of men employing organized research for its development. A symposium of research activities in the welding field during the past three years was presented at the annual meet-

ing of the American Welding Society on April 28. These activities have developed scientific methods for the manufacture of welding wire, have greatly increased the strength and ductility of Thermit welds, have increased oxygen purity with resulting increase of cutting torch efficiency, have reduced the cost of tools by welding tool bits to shanks, have determined the strength of rail bonds, have developed methods of making steel ties from scrap rail and of welding alloy steels and non-ferrous metals, and have done much to reduce the cost of manufactured products by the use of automatic welding. A study has been made of fatigue characteristics of welded flues, gas hose connections have been standardized, spot welding is being used in many cases to take the place of riveting, tests have been made to determine the relative strength of welded and riveted structures and welding has already been used under a variety of conditions for the construction of buildings, cars, ships and bridges. The General Electric Company has announced that the use of welding is to be adopted by that company as a means of construction of factory and other plant buildings. The railroads were the foster parents of welding, but the child has grown up, has been educated in the world of experience, and apparently now has much to offer the railroads in return for the interest they displayed in its early days.

Coal Strikes in 1922 and 1927

THE difference between the effect immediately produced by the coal strike which began on April 1, 1922, and that which began on the same date this year, is a remarkable commentary on both the ineffectiveness of the present strike and the present efficiency of the railroads. In the last three weeks before the strike began in 1922 the railways loaded 528,000 cars with bituminous coal and in the first three weeks of the strike only 197,000 cars, a decline of 66 per cent, or two-thirds. In the last three weeks before the strike began this year the railways loaded 589,000 cars with coal and in the first three weeks of the strike almost 457,000, or a decline of only about 22 per cent. It is a remarkable fact that, in spite of the strike, the number of cars loaded with coal in the two weeks ended on April 16 was larger than the number loaded in the corresponding weeks of five of the eight preceding years.

Before the strike in 1922 apparently about two-thirds of bituminous coal was produced in the union mines in which the strike occurred. The production of coal in the non-union mines increased so rapidly in that year that by July 1 it was 50 per cent greater than on April 1. This imposed a heavy burden on the originating carriers and the new routes it was necessary to work out also presented a difficult problem to the other lines to which they delivered coal. Just as the railways were making some progress in solving the problems thus presented their own shop employees struck and the movement of coal sharply declined again. As a result of developments during the last five years conditions are widely different now. Throughout these years there has been a steady decline in the normal production of the union mines and a steady increase in the normal production of the non-union mines. The facilities and operations of the railroads have been gradually readjusted accordingly, their general efficiency has been greatly increased and they are now handling satisfactorily the large amount of coal being produced in the mines that are still open. The only thing that could now occur which would make the coal situation serious for some months would be labor troubles in non-union mines.

More Light on the Grade Crossing Problem

EXCESSIVE zeal in the creation of new laws by the parliamentary bodies of the United States and Canada and their political subdivisions has been the source of much bitter criticism as well as facetious comment in recent years. However, it is necessary only to cite the recent enactment of the radio act by the Congress of the United States to illustrate the need for additional legislation to meet rapid social changes wrought by the intensive commercial development of scientific discoveries. In the field of highway transport the advent of the motor vehicle has brought about a veritable revolution in social and commercial relationships, and as pointed out in the paper by R. H. Ford appearing elsewhere in this issue, the solution of the grade crossing problem is being seriously hampered by the archaic status of highway administration.

The author has done a real service in pointing to the difficulties with which railway managements are confronted in dealing with the protection and elimination of dangerous crossings. The changes which he advocates in highway control are indeed drastic, but the trend of the times is for change and offers promise of improvement along the lines which he proposes. Legislation always lags behind current needs, and properly so, but much progress has already been made in modernizing highway administration, for it is less than 20 years since rural highways were entirely under the control of township commissioners of a calibre that was attracted by an emolument of \$2 per day while actually employed and embryo state highway commissions could lend their advice and assistance only when the local bodies were willing to accept them.

The author suggests that many rural highways should be closed for the purpose of eliminating unnecessary grade crossings. This will appear unduly optimistic to the many railway officers who have had unfortunate experiences in attempting to carry out this idea and have met with defeat in cases where the road was used by but a single farmer, or have been unsuccessful in preventing the introduction of unnecessary grade crossings into a new through highway in the face of the pressure imposed by local communities who wanted it routed via "Main Street." But in spite of such instances of a short-sighted attitude, the general tendency of public officers is constructive, and there is good reason to believe that rapid progress will be made to clear up the chaotic conditions of highway administration which Mr. Ford has portrayed.

The Flood and Freight Revenues

AT first glance, it would appear that the present flood would have an extremely discouraging effect on the freight revenues of the lines involved. At last reports an area of 10,000 square miles, principally farm land, was under water. Cotton is the principal crop produced in the section affected and, for the most part, the water will not recede from the farms in time for cotton planting. Moreover, the flood refugees are scattered about the country, away from home, and it will take them some time to get back and settled.

Without attempting to minimize the seriousness of the flood, it must be remembered, however, that it covers only a small area of the country and relatively few railways are affected. Furthermore, the section under

water or otherwise hampered by the flood is not in general highly developed traffic-producing or receiving territory.

While cotton planting will suffer severely, this will by no means paralyze the agricultural development of the flooded section. Railway agricultural and development agents are already in touch with the farmers affected. Individual studies are being made of each case and, if cotton cannot be planted, something else will be. Little of the flooded land will be permitted to lie fallow, once it emerges from the water. If the deposit of sand is not too great, such emerged land will be unusually fertile and particularly adapted to various specialized crops.

The net effect on freight revenues from loss of agricultural products should not be great, and it will not have much bearing on freight revenues in general, even if the loss is greater than at present estimated. Except in the case of short lines, the railroads have a large proportion of through business, which, except for temporary service interruptions, is unaffected by flood conditions. Thus, even in the highly unlikely contingency that agricultural development in the flood zone will be almost completely retarded this year, the revenues of the railways as a whole will not be seriously affected.

Another unusual revenue-producing condition is found in the fact that much rehabilitation is necessary. The inhabitants of the flooded districts will need new farming implements and new household goods, and this is remunerative traffic. Furthermore, there will be a large movement of road-making machinery and supplies, since much road repair and rebuilding inevitably will be necessary. The movement of traffic for rehabilitation and road-building should offset largely, if not entirely, any revenue loss sustained in other fields. On the other hand, however, the railways most affected will suffer heavily, at least temporarily, on account of the large expenditures on their properties that the effects of the flood will necessitate.

Hump Versus Flat Yards

WHAT is the minimum number of cars to be classified that warrants the conversion of a flat yard to a hump yard? This is a question that confronts an operating officer whenever the reconstruction of a yard of moderate size is under consideration. At first glance the answer would appear to be capable of ready determination. Yet we find one road converting a yard from hump to flat switching where the number of cars handled exceeds that on a neighboring road where the reverse operation is being made. This indicates that there is as yet no unanimity of opinion among railway officers regarding the dividing line between these two methods of classifying freight cars.

Originally all yards, save a few exceptions influenced by local topography, were flat yards. As the traffic increased, hump or gravity yards came into use, and, as is common with new developments, they were constructed at a number of points where they were not warranted. On the other hand, many terminals are still being operated with flat switching with unit costs that could be reduced considerably by the construction of a hump.

Of late this problem has been complicated by the development of the "main tracker" plan of train operation whereby many trains are so made up at the originating terminal that they pass through intermediate terminals with little or no switching. As a result the amount of classification now being done at many terminals is only a fraction of that done a few years ago, in spite of

the marked increase in traffic. Another factor that has appeared in the last three or four years is the car retarder which, by reason of the elimination of car riders, has reduced the cost of hump car operation materially and lowered the dividing line between gravity and flat switching.

This question is one of importance to railway operation because of its direct effect on transportation costs. Recognizing this, the Committee on Economics of Railway Operation of the American Railway Engineering Association undertook an investigation of the subject somewhat more than a year ago. More recently a similar committee has been appointed by the American Association of Railroad Superintendents. Approaching it from both the engineering and the transportation viewpoints, these committees may be expected to throw considerable light on this problem. Since every terminal is a problem in itself, however, operating officers can well afford to consider the subject in the light of the conditions prevailing on their own divisions to determine whether, in view of recent developments, their yards are now designed and are being operated in accordance with the best information available.

The Common Interests of Railways and Their Patrons

THE unprecedented floods in the Mississippi valley are affording a striking illustration of the interdependence of the welfare of the people of each territory and the welfare of the railways by which they are served. The people of the flood stricken territory are undergoing great inconvenience, suffering and losses, and in these the railways and their officers and employees are participating. Most of the railways especially affected were, before the floods came, participating with their territory in increasing prosperity and good prospects. The floods have greatly reduced their traffic and earnings, caused much destruction of their property and will cost them directly and indirectly many millions of dollars.

Meantime, the people of the territory are depending upon the railways to render as much service for their protection and relief as is possible, and the railway personnel, from presidents down to track walkers, is working night and day, under a terrific strain of responsibility and in many cases under dangerous conditions, not merely to repair and protect railway property, but to render the greatest possible amount of service to the stricken people.

That the effects of the flood upon the railways, and the efforts they are making to serve the public in any way and every way possible, in this great emergency have not failed to be observed by the public is illustrated by an editorial in a recent issue of the *Sallisaw* (Oklahoma) *American*. This town is one among many that have been isolated by the floods. "Once more has the fact been brought out that the country is dependent upon railroads," says the *American*. "Admitting that the service of the roads has been inadequate under present conditions, we have at least had an occasional train, delayed mail service, and have been in constant communication with the outside world through the telegraph, which has been maintained by the railroad employees. Work at every possible point has been going on rebuilding, strengthening and patrolling the washed-out tracks. Trains have been detoured miles and miles out of their regular course to serve the people, and the financial loss to the roads in their fight to render adequate service will reach millions of dollars. On the other hand, what of

the bus? They gave us service as long as the highway maintained by you was passable; with curtailing of the privilege of free traffic way, the buses stopped."

Flood Situation a Tragic Example

The flood situation affords one of the most tragic examples of the fact that, regardless of who may own railway securities, every railway, its organization and its service are integral parts of the very being of the particular communities and territories it serves; that it is subject to all the vicissitudes that they are; and that those who, when it may be enjoying some degree of prosperity, choose to look upon it as a kind of alien institution that is not entitled to the same kind of consideration as other concerns in the community and territory, are likely to find that the way it has been treated largely determines the kind and amount of help the railway can give in an emergency.

The troubles and even calamities to which communities and territories are subjected are innumerable in kind. But there are almost none of them of which railways in our modern civilization do not feel the effects and in which they are not helpful. When a good many years ago the Imperial valley of California was threatened with destruction by the Colorado river, it was the organization and expenditure of a great railroad, the Southern Pacific, that saved it.

Railways and Farmers Suffer Together

Of very different character and much wider extent has been the agricultural depression in the west within recent years. The contrast between the situation of the western railways before and since the war shows the extent to which they have suffered with their patrons. In the spring of 1917, when the eastern lines, because of their increasingly inadequate net earnings, sought a general advance in rates, the western lines refrained from doing so because the farmers of the west, owing to the large advance that had occurred in farm prices, were enjoying the greatest prosperity in history, and the earnings of the lines serving them were such that it was considered useless to try to get the Interstate Commerce Commission to grant them higher rates. The result of the comparative prosperity that the western lines then enjoyed was that up to the end of 1920 their rates were advanced less than those of the eastern lines, and they were subsequently reduced more. Since then farm and other conditions in the west have been such that the western lines have had a large decline in passenger business and almost no increase in freight business, and their rates have been held down on account of the conditions alluded to, with the result that most of them have had even a larger share of adversity than western farmers.

Changes in South and East

For some years, while western railways were doing so badly, those of the south, owing largely to the remarkable post-war development of their territory, were constantly increasing their gross and net earnings. Within the last year, however, the subsidence of the boom in Florida and the over-production and sharp decline in the price of cotton have had very marked adverse effects upon the earnings of the southern lines. Their net operating income began to decline month by month last fall. In the first two months of this year the large declines in both their freight and passenger business caused a decline of almost \$13,000,000 in their total earnings and of more than \$5,000,000 in their net operating income.

The railways of the eastern district have earned substantially more net thus far this year than last year. This is but another illustration of the way in which railway results are largely determined by territorial conditions.

Most of the union coal mines are located in the eastern district, and because of the approach of a strike in these mines the coal traffic of the eastern lines was abnormally large for some months prior to April 1. It seems highly probable that one important effect of the strike, as long as it lasts, will be a substantial reduction in the total net earnings of the eastern lines.

Facts versus Theories

It is extraordinary how such facts as these fail to fit the theories which for years have dominated our regulation of railways. Regulation has been largely predicated on the assumption that whatever net return the railways earned was so much subtracted from the income and welfare of the people they served, but obviously railways could not render the service ordinarily expected of them, much less that needed from them in great emergencies, if they were not able to raise and invest the capital required to put and keep them in condition to render that service. It has been widely assumed that, if the value of a railway's property could be determined, its past and present earnings and expenses would show just how its rates should be regulated to enable it to earn no more or less than a fair return. A railway's earnings and expenses depend upon conditions in its territory which are subject to the widest fluctuations, and these always, to a large extent, determine over long periods the return it will be able to earn on any basis of valuation and rates. It is constantly assumed that when a railway is receiving net operating income in excess of what is regarded as a fair return it will be able to continue to do so if its rates are not changed, and that therefore its rates should be reduced. The amount of net a railway can earn when all conditions are favorable is no measure of what it can earn when they become less favorable or acutely unfavorable, and the only way to assure opportunity to earn on the average a fair return over a period of years is to let it, when conditions are favorable, earn substantially in excess of the so-called fair return.

Last year in most parts of the country almost all the conditions affecting railway earnings and expenses were favorable, and therefore, as a whole, the railways approximated for the first time the so-called fair return, but with the changes in conditions that have occurred owing to the decline in the price of cotton, the coal mine strikes, the decline in shipments of forest products, the advances that have been made in railway wages and others that are being sought, the terrible floods, and so on, most groups of railways are confronted with situations quite different from those which existed in the early part of last year.

Roads' "Hardest Task Ahead"

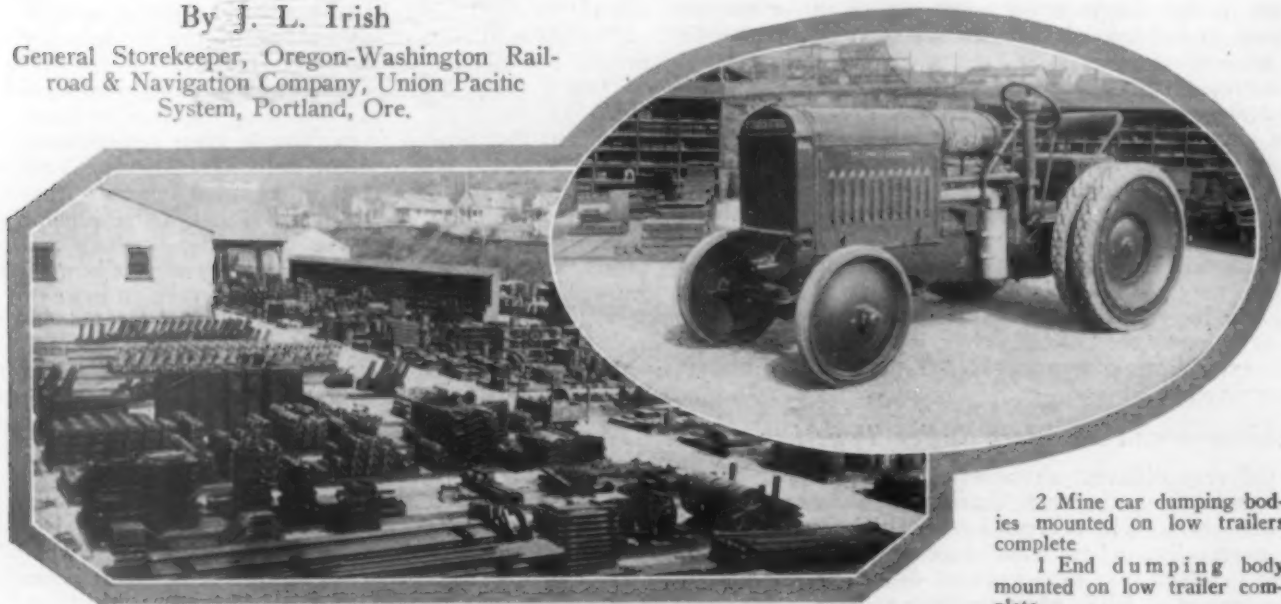
In a recent editorial the Louisville Courier-Journal, after commending the remarkable improvement that has occurred in railway service, said: "The railroads' hardest task plainly is before them. Any relaxation of their present efforts, any failure to continue the performance of the past year, would be immediately noted and complained of. Railways now must 'consolidate their position,' to borrow a military term, and place their present efficiency on a permanent basis. The question arises, 'Can this be done under all conditions?' This is a question the answer to which will be supplied by the attitude of the public and the Interstate Commerce Commission, as well as by the efforts of railway officers and employees. The Courier-Journal's use of the words "all conditions" is significant. When all the conditions to which railway operation and earnings are subject are considered by the public and regulating authorities as they are and must be considered by railway managers, the railways will render satisfactory service under all conditions.

Union Pacific Betters Material Handling on Coast

Good roads and motorized transport revolutionize conditions at Portland terminal

By J. L. Irish

General Storekeeper, Oregon-Washington Railroad & Navigation Company, Union Pacific System, Portland, Ore.



Left—In the Casting Yard at Portland. Right—A New Tractor for Stores Delivery

SINCE 1922, the Oregon-Washington Railroad & Navigation Co., a part of the Union Pacific System, has given much attention to improving the methods of handling supplies around the shops and material yard at its Portland terminal. An important result is the system of motorized transportation now in effect at this point. The wheelbarrow, hand truck and push car have given way almost entirely to a fleet of tractors and trailers. This equipment, comprising 138 units at the present time, has in large part been built in our own shops according to carefully worked out patterns and is believed to be unusual for the many special types of trailers that are included, there being a special type of equipment for almost every task. This transportation is systematically organized with approximately six miles of roadways over which to operate and has brought about changes in methods of handling materials on the property, not only between supply depots, but within shops and around repair tracks, which have resulted in many economies.

The list of equipment now in use at Portland is as follows:

- 2 Hood tractors—gasoline
- 2 Fordson tractors with rear extension and coupler
- 2 Fordson tractors with front and rear bumpers
- 1 Baker electric crane tractor
- 49 Three-wheel trailers for lumber, bar iron, etc.
- 72 Low four-wheel trailers—general service
- 2 All-steel trailers for hot forgings, etc.
- 4 Dray-type trailers for bulky material
- 2 Wood wagons, end dumping—for mill use.
- 1 Oil delivery and sprinkler wagon, air operated
- 1 Air pump trailer—self lifting.
- 60 Demountable frames for low trailers.

2 Mine car dumping bodies mounted on low trailers complete

1 End dumping body mounted on low trailer complete.

The initial equipment, consisting of 2 Hood tractors and 20 low-type

trailers, was purchased and placed in service during the summer of 1922. They were bought primarily for the use of the store department to facilitate the handling of materials and supplies between the various store sections, storage buildings and platforms, and the sub-stores located on the light and heavy repair tracks, and in handling material to and from the shops. It was the first equipment of the kind placed in use on the system. At the same time, a Fordson tractor with rear wheels weighing 1,300 lb. each, was purchased for the shops, primarily for use in switching passenger equipment in and out of the coach shop and also to do its hauling.

Prior to placing this equipment in service the work was accomplished by laboring gangs with hand trucks, four-wheel Reynolds trucks, and push cars and by switching cars as near to the point of storage as practical. Mixed cars required switching by yard engines and the store locomotive crane, already overburdened, and the usual delays resulted. This method also restricted the storage space that could be maintained adjacent to the tracks and around the shops and led to much congestion. With the introduction of tractors and trailers, storage platforms were installed on ground which could not be used before, because of its distance from tracks. Stocks were rearranged, allowing ample space for proper storage, the time of monthly stock-taking was correspondingly lessened, and marked reductions were made in the labor gangs.

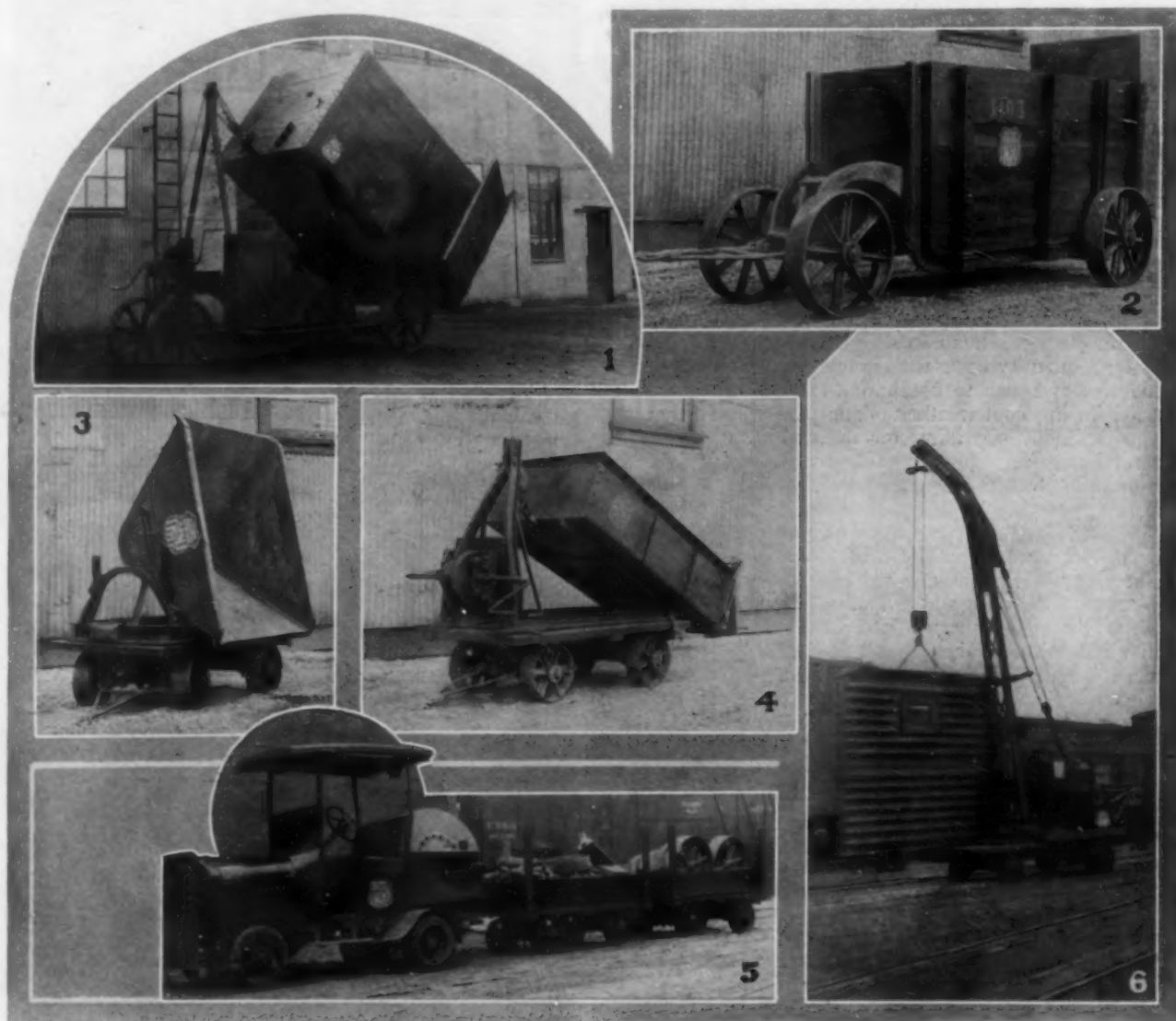
At the time of the initial installation the store forces delivered all material and equipment for repairs to the shops and when repaired the shop forces returned it to the various stores. Thus, there were two independent

forces performing the same kind of work. In addition to returning all repaired articles, the shop forces would call at the storehouse for the material required for manufacturing on store orders and also return the finished product. Except for articles that could be handled on warehouse trucks, in hand carts, or in a few cases on four-wheel wagons drawn by gangs, the material was handled on push cars, principally such as were sent in by the maintenance of way department for repairs and confiscated by the store forces or shop men, both of whom spent considerable time locating empty cars on which to load their material. When the automotive equipment was placed in service all of this work, with the exception of small articles, was absorbed by the store forces.

The handicap under which the work was performed is

equipment for repairs were loaded on push cars at the east end of the transfer table pit which were then moved by transfer table to lateral tracks serving the pits in the shops, after which the material was carried as near as practical to the point at which the repairs were to be made. Often the shops could not make the repairs at once, and the cars would be left standing under load. If the push car track was then needed for moving a locomotive in or out of the shop, it would become necessary to push the load back to the transfer table and shift it to some other vacant track.

It was necessary to handle push cars through the blacksmith shop for materials going to and from the shipping platform, where the various materials were consolidated in through cars for the outside store points. The same conditions prevailed between the lumber yard



Something New in Transport

(1) Special Wood Wagon with Hoist—(2) Dray with Combined Steel End Gate and Loading Apron—(3) Self-Dumping Body for "Hot" Work—(4) Steel End Dump Body with Hoist for Handling Gravel, etc.—(5) Stores Delivery Tractor with Load—(6) Crane Tractor Handling Car Ends.

better appreciated when it is considered that the present terminal at Portland is a large one, with a 41-stall roundhouse, a large boiler, blacksmith and tank shop, a 15-pit locomotive shop, a foundry, a scrap and reclamation plant, a coach shop, a system lumber yard and wood-working mill, and a car repair shop and yard, extending over 50 acres of property. Previously, material and

and the shipping platform. With many demands for the transfer table, considerable time was lost by the various gangs waiting for it. All such material is now handled on trailers over roadways parallel to the transfer pit or over shorter routes.

When the automotive equipment was placed in service, all haulage was absorbed by store forces. But there were

many obstacles to be overcome. For instance, the trailers purchased were the same as those used on the commercial docks at ocean terminals where the floors were smooth and articles could be placed on the flat top of the trailer without the use of stakes. The problem was not so simple with railroad material with its irregular shapes and sizes and with the necessity of crossing numerous rails. It became necessary, therefore, to add stakes and pockets. Next, improvised frames of 2-in. by 12-in. lumber were made to hold loose materials on the trailers. These frames were the predecessors of the type of frame now available for use on trailers, the feature of which is their interlocking construction at the corners so that several frames can be placed on top of each other.

It was soon found that the 20 trailers were inadequate. To meet this condition, a number of Reynolds four-wheel trucks, formerly used by the gangs, were equipped with the same type of front wheels and axles as were used on the trailers previously purchased.

Until 1923, only dimension lumber, lumber run to pattern, car stock and a small emergency bridge stock was carried at Portland. Bridge renewal requirements were shipped direct from the mills to the job. This proved unsatisfactory, particularly on small jobs. The lumber shed, a building 50 ft. wide and 480 ft. long, was located 30 ft. from the mill and car repair shop and was served by a track on each side. Lumber was handled to and from the mill on push cars. In 1923, it was decided to order all bridge material as soon as the annual inspection lists were approved, and to ship it all to Albina for storage, thus allowing the purchasing agent to buy on a quantity basis with ample time in which to get deliveries and also to obtain fall-cut timber in time to season during cool weather. The plan was further enlarged upon by providing for the making of shipments from Albina complete with hardware and loading out the material in bridge order a short period in advance of the bridge crews.

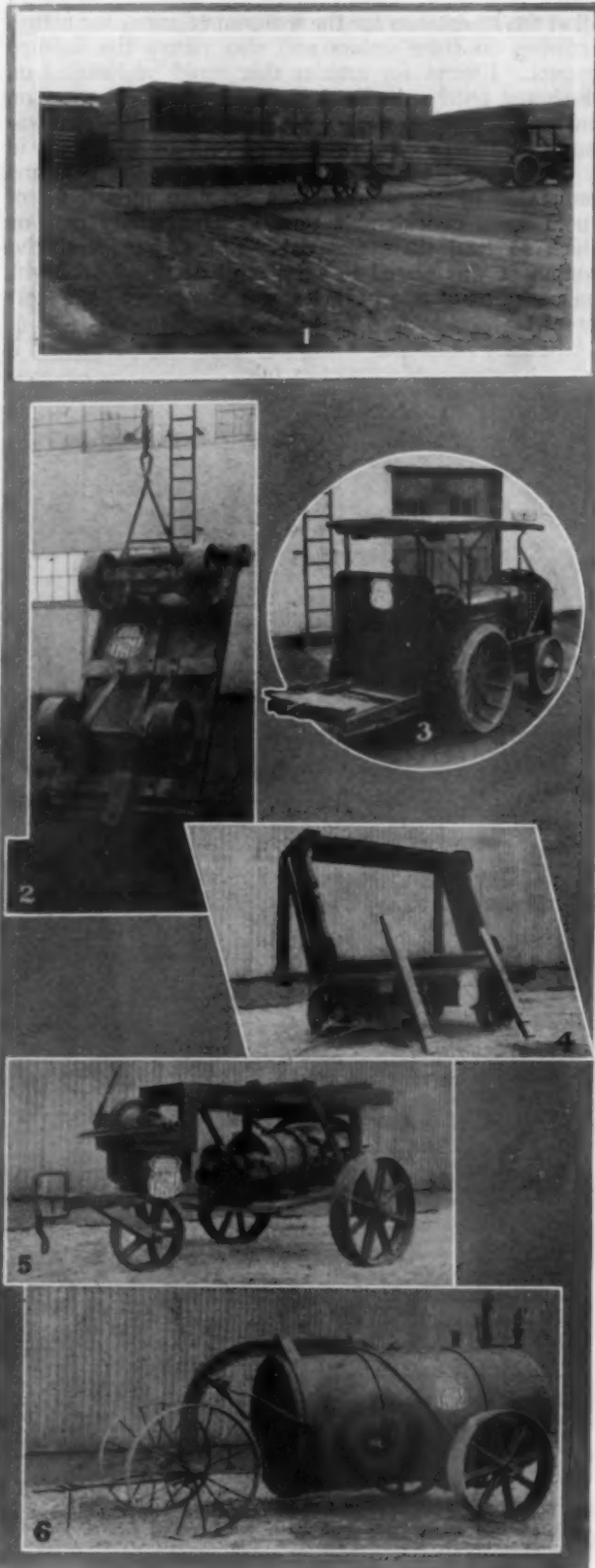
The old yard was hemmed in on one side by the main line to Seattle and on the other side by repair tracks. A new yard and lumber shed 50 ft. wide and 800 ft. long was constructed and the old shed was then provided with tracks and converted into a car repair shed.

To handle the lumber to and from the new facilities a specially equipped Fordson tractor and 15 three-wheel skeleton trailers were added to the transport facilities at a cost of \$1,170. These trailers, with a few changes, were patterned after those used by mills in the northwest prior to the introduction of the straddle-type lumber carriers and have been carefully built throughout to meet the local problem.

In the same year, 1923, a tank wagon was made from second-hand materials, for handling car oil from the oil house to the waste reclamation plant and to the light and heavy repair tracks. The tank consists of an air reservoir and was tested to 175 lb. It cost only \$43 to make. Oil is removed by merely coupling up the air, which is available at all the plants served. Previously, all this oil was delivered in drums and pumped out by hand.

In 1924, the transport equipment was enlarged by 30 additional lumber trailers and 24 low four-wheel trailers, as well as an additional Fordson tractor for handling lumber. With this additional equipment we were able to handle all orders between the yards and the wood mill, as well as from the mill direct to cars being rebuilt on the repair tracks.

On December 10, 1924, delivery of materials to shops by store forces was begun, and a foreman placed in charge of all deliverymen and all automotive equipment in the terminal, the effect of which was to place addi-



Part of Equipment at Portland

(1) Special Skeleton Trailer—(2) All-Steel Trailer for "Hot" Work—(3) Tractor with Seat-Operated Coupler—(4) Trailer with De-Mountable Frame—(5) Air Pump Carrier with Hoist—(6) Oil Wagon with Air Connection.

tional work on the equipment. However, with the splendid spirit of co-operation existing between all officers and departments in our Albina terminal, very satisfactory results have been obtained.

Roads Improved

At the outset the roads gave trouble. The cinder surfaces were inadequate under the heavy rainfall of the Pacific Northwest and the heavy loads of the motor transport and it was necessary to rebuild them. The first step in the construction of the present road is a good foundation of crushed rock or coarse gravel higher than the surrounding ground and well crowned. On the gravel is placed a layer of cinders to act as a binder while mine tailings are spread over the cinders. The entire mass is then wetted and packed with a steam roller, after which the road is oiled when necessary to keep down the dust. The oiling is done by the oil tank

cars from the rails up, 644 of them were given new steel ends. When this program was started an additional Fordson tractor was installed to haul materials to the car shops and as near as practical to the point of use and the crane tractor was transferred to the car department to set the steel ends in place on the cars. A total force of approximately 500 men were employed in the car department and mill for both repairing and rebuilding cars, which quickly suggests the help which this transport equipment was able to render in handling the supplies.

In 1926, because of the large volume of materials used in the car rebuilding program and also to take care of the large and heavy loads, four special dray-type trailers having a rear axle capacity of eight tons were built, at a total cost of \$790. These carriages are adapted for handling heavy and bulky material such as coupler yokes, coils, kegs of nails, salt, fire clay, etc., and have



Looking North Over the Portland Terminal, Served by Motorized Transport

Wood-Working Mill and 800-Ft. Lumber Shed in Foreground—Store Building and Reclaim Plant at Left of Main Shop and Roundhouse.

previously mentioned. To facilitate the handling of the mine tailings, an end dump body was built for use on a low trailer. The body is of steel, has an end gate, and is raised or lowered by means of a windlass at the forward end of the frame. Its cost, \$50, has been repaid many times in service rendered.

In 1925, 12 additional low four-wheel trailers and a trailer for handling air pumps were made at a cost of \$725. At the same time a Baker electric crane complete with charging apparatus was purchased for the mechanical department for use in the roundhouse and around the shops. During 1925, a program of rebuilding box cars was started, since which an output of eight cars per day has been maintained except for a short period following November, 1926, when the output was reduced to three per day. This was all in addition to routine car repair work. In addition, to rebuilding these

proved their usefulness so well that they are to be increased to 6.

The woodworking mill produces large quantities of saw trimmings. During 1926, in order to take care of these trimmings, the transport equipment was again enlarged by the building of two large dumping wood wagons, which cost \$540. These wagons are left at the saws until filled, thus dispensing with excessive handling of this material. Again, in the rebuilding program, large quantities of iron and plates were used, and the effort to facilitate this work led to the building of two more three-wheel skeleton type trailers, the cost of which was \$175.

It has always been the practice in the blacksmith shop to place coupler yokes, drawbars and other large hot forgings on the ground to cool before being sent to their destination. To overcome this extra handling

two low four-wheel all-steel trailers, including stakes, were built. They cost \$190.

In the same shop a similar practice prevailed in handling grab irons, yoke rivets, car rivets, bolts, etc. The solution of the material-handling problem in this case was the purchase of two dumping Koppel car bodies and mounting these upon low four-wheel trailers. With this equipment the items are thrown directly into the steel cradles as fast as taken from the machines, thus avoiding rehandling. The cost of the bodies ready to mount was \$62.50 each.

The following equipment has been authorized for 1927, which, when added to that already in service, will enlarge the total transport fleet to 7 tractors and 162 wagons or a total of 169 units.

- 1 International tractor
- 4 Koppel cradle cars mounted on low trailers complete
- 18 Three-wheel skeleton trailers for lumber
- 2 Three-wheel skeleton trailers for iron
- 2 Dray-type trailers
- 2 Low four-wheel all-steel trailers
- 1 W. & K. Crane attachment for Fordson.

All tractors and trailers are under the supervision of the stores delivery foreman, who handles all of the work for the mechanical, stores and bridge and building departments. The trailers are designed by the stores department and with the exception of lathe work are made by the stores reclamation department. All repairs to trailers and to frames and the bodies of tractors are made by the stores reclamation department while the engines and the motion parts are repaired by the gas engine department of the shops.

Inter-shop deliveries by trailers are being made and its increase encouraged. This, however, applies only where large quantities are handled or in the case of heavy articles, as when driving boxes and pistons are hauled between the machine shop and the brass foundry for facing, when air pumps are carried from the test room in the machine shop to the roundhouse, when brake hangers, main rods, side rods, pistons, crank pins, guard rails, etc., are handled between the blacksmith shop and the machine shop. The same holds true where car forgings such as lateral running board brackets are carried between the forging machines in the blacksmith shop to the punches in the boiler shop in the same building, also where material is handled between various machines in the blacksmith shop as in the case of carrying tie rods from the shears to the upsetting machines and then to the threading machines, in carrying various articles of tinware from the tin shop on the balcony floor of the machine shop to the paint shop and in transferring various roadway signs from the boiler shop to the paint shop, etc. Small articles similar to those being handled by the runners in the store delivery work are handled by the employees of the various departments in the shops.

At various points in and around the shops boxes are

TRACTOR SERVICE

TRACTOR BOX NO. 06 ALBINA March 28 1927
1 EMPTY TRAILER & 1 BOX REQUIRED AT BRICK SHED

Watts,
Sign Here (Sec. Stkpr.)

TRAILER NO. 70 HAS BEEN PLACED

Dorsett
Driver

TRAILER NO. 70 NOW AT BRICK SHED MOVE TO
SHIPPING PLATFORM

Watts

TRAILER NO. 70 HAS BEEN MOVED

Dorsett
Driver

TRAILER NO. 70 IS NOW EMPTY

Martin
(Shipping Foreman)

Sample of Form Used in Regulating Tractors

provided for depositing the orders for such work. The tractor drivers, who cover established routes, pick up these orders on their trips. At points where the amount of work does not warrant such boxes the orders are placed in the regular store delivery boxes and the orders are then taken to the store delivery office, where they are distributed to the various drivers.

The practice of keeping the products on wheels is followed where practical. In the mill this is done entirely, lumber being unloaded from one trailer, put through the machine and loaded immediately on another trailer. In the blacksmith shop this is done extensively.

Each tractor has its regular assigned duties and districts over which it operates. The tractors are numbered 1 to 6 inclusive. One does all the hauling between various stores, platforms, the scrap dock, and the receiving and shipping platform beside the main store. A second tractor, with the small delivery box, is engaged entirely in stores delivery to shops in the south yard.

A third tractor handles all lumber trailers in and out of the mill assembly station at the south end and all loads from the machines to the various stations in the car shop, where the material is applied in the course of rebuilding. This machine also handles all loads of saw trimmings from the saws to the incinerator, and also assists in switching cars in the north yard during the absence of the tractor, regularly assigned to this work. Tractor No. 4, handles all trailer loads of lumber to and from the yard, to the assembly station in front of the mill, and all trailers from the sorting platform serving the lumber shed to the various piles. Many badly mixed cars are received and such cars are handled on this sorting platform, all trailer loads moving from the yards to the train assembly point, where the load is delivered to the shipping platform. This comprises such l.c.l. shipments as would not justify spotting a car at the yard and later switching it to the platform to finish loading. This tractor also performs such switching of cars as is required at the yard during the day and after the switch engine has completed its spotting of cars, which it does prior to 8 a. m.

Tractor No. 5, does all switching at the car shops and where cars are undergoing repairs after the regular yard engine has finished switching. It also serves the coach shop tracks, as well as the boiler shop and machine shop, handling such articles as engine trucks, fuel oil tanks on heavy steel push cars, fire boxes, back ends, etc. All switching in the south yard, where practical, is done the first thing in the morning before going to the north yard. Ample notice is given by the various departments so as not to interfere with his work at the car yard. In addition to handling the switching, this tractor breaks up as well as makes up, trailer trains moving to and from the north and south yards. The trailers are spotted at various scrap-accumulating points and handled by this tractor to the train. Trailers for scrap wood are also spotted at various points on the repair tracks and hauled by this tractor to the fire. Heavy hauling required in the vicinity of the repair tracks and shops is also done by this tractor, such as hauling reinforcing bars and plates from the Oxweld burning skids direct to stations where the material is applied to cars on their continuous course through the shop.

Tractor No. 6, assists in making and breaking up trains which it handles to and from the north yard, at the present time averaging six round trips per day. It also consists in switching cars in the south yard in emergencies.

Tractor No. 1 handles an average of 30 to 40 tons daily; No. 2, 25-30 tons; No. 3, 80-90; No. 4, 70-80; No. 5, 25-30; No. 6, 40-50.

Lack of Unified Control Complicates Highway Crossing Problems*

Division of authority among 150,000 unrelated bodies precludes development of uniform policies

By Robert H. Ford

Assistant Chief Engineer, Chicago, Rock Island & Pacific

THE highway system of the United States has undergone a most rapid and startling transformation within the last few years until it has now become one of the principal transportation agencies of the country. This, in turn, has resulted in complicating the highway grade crossing situation and makes it one of the most important problems confronting the American public today, largely because of the wide diversity of interests and political jurisdictions under which the highway system is supervised and controlled.

Before the advent of the automobile the highway mileage consisted largely of public pathways meandering through the country without respect to curvature or gradient and with little regard for principles of economic location. Highway maintenance was in keeping with methods of location. A vast mileage also served as a convenient medium for the farmer to work out his taxes. But, overnight, as it were, a great mileage of modern highways has been developed. Roads have been transformed from country lanes into broad thoroughfares, graded, drained, and paved in the most approved fashion, and constructed at costs which rival the cost per mile of a modern steam railroad.

Many Public Bodies in Control of Highways

The public highways of the United States may be grouped about as follows:

1. *City Streets.* Wholly within the control of municipalities, and supervised and directed by approximately 3,100 independent organizations.
2. *Boulevards and Park Roads:* Controlled by park commissions and usually independent of municipal authorities with respect to standards, public markings, maintenance, etc. There are approximately 3,000 principal commissions of this character in our larger centers.
3. *County Roads:* Under the control of county supervisors or judges, road commissioners, etc., independent of each other and of any central body, and subject to their own views with respect to the location of the roads and grade crossings thus created or closed, the safety and convenience of the public, highway markings and standards, character of maintenance, etc. There are about 145,000 of these separate bodies in the United States in charge of highways.
4. *State Highways:* More or less under the control of state highway commissions and independent of municipal or county authorities—one in every state, or 48 commissions. Each state commission is a law unto itself with respect to the location of roads or crossings, standards of maintenance, highway markings, etc.
5. *Federal Roads and Highways:* Controlled by federal agencies, and except for the state aid roads, more or less independent of state, county or municipal authorities.

*Abstracted from a paper presented before the Western Society of Engineers at Chicago, on April 25.



From the foregoing it will be seen that our highway systems are in the hands of over 150,000 unrelated bodies more or less independent of each other and political in their composition, except as they may delegate their powers from time to time to persons competent by training and experience in such matters.

It is not difficult, therefore, to understand why our grade crossing situation both at highway and railway intersections is in such a chaotic state, why our highway marking system is so widely different over the country, to the utter confusion of the traveler, or why there is no uniformity of standards for protection at railroad grade crossings. The excellent systems in some sections are neutralized by complete reversals of practices on other sections to the bewilderment and danger of the highway user. It also serves to throw some light on the reason why in 1926 there were 600,000 people injured and 20,819 killed in accidents on highways and at highway intersections; and 6,991 persons injured and 2,492 killed at railroad crossings in the United States.

Extent of the Highway System

The highway system is built and maintained by public funds and now comprises 2,862,197 miles of roads, exclusive of streets and park road mileage in communities with a population of 2,000 or over. These roads may be divided as follows:

1. The federal-state, or federal aid highway system, approximately 200,347 miles
2. County, township and other public roads.... 2,661,850 miles
- Total 2,862,197 miles

In contrast with the railway transport system with its centralized operating agency and close working alliance with the general public through the interstate and state railway commissions, the highway system is operated by a vast unwieldy body of unrelated organizations with continually changing personnel, and except for a relatively small portion of the total mileage where the duties have been delegated to competent persons, there is only frag-

mentary knowledge of the economic problems with which these highway authorities are confronted. It is not surprising, therefore, that staggering sums of public funds are being wasted annually on the highways and that an enormous number of unnecessary accidents and casualties occur annually. These casualties would be greatly reduced if co-ordinated control of these political subdivisions was set up and the highway transport system co-ordinated and modeled, as far as practicable, on the system which the public has built up for its railway transportation system.

Large Mileage Could Be Abandoned

The horse-drawn vehicle has practically disappeared from the highways, to be replaced by the self-propelled vehicle of from 5 to 20 times the weight and 3 to 10 times greater speed, and with maximum passenger and freight-carrying capacities equivalent to railway coaches and freight cars. This rapid transition has made possible such great changes in highway transport as to render unnecessary and undesirable a vast highway mileage of the horse-drawn vehicle age, which now imposes an enormous and an ever increasing burden on the public treasury for upkeep and constitutes an outstanding menace to public safety.

It has been stated by a prominent highway authority that with proper education and scientific planning, approximately 30 per cent of the county, township and miscellaneous highways could be abandoned, with a proportionate reduction in the number of existing highway intersections and railway crossings, and in the annual cost of maintenance with its excess burden of taxation. What is more, it would decrease the annual toll of lives and casualties at grade crossings. A partial study in several western states seems fully to justify this statement.

Calls for Organized Study

But the application of this principle will first require proper recognition of the economic advantage for properly correlated national railway, highway and water transport systems and relieve multitudinous highway bodies of their authority on standardization, maintenance and operation. This work should be delegated to a properly qualified state authority functioning through state utility commissions, who, in turn, should be required to work through a national authority associated with the Interstate Commerce Commission with respect to public policy in the production of safe and convenient highway transportation. It is a matter for serious consideration whether federal highway aid should not be withheld until some satisfactory organization of this character has been properly developed by the states.

One of the practical results that this would doubtless accomplish would be to require a clearer and more comprehensive understanding of the strategic location and development for through trunk highways, and their relationship with secondary or feeder roads as well as a more rational authority for their projection from federal and state sources.

The more important secondary feeder lines would thus become tributary in fact to the trunk roads, and bear the same relation that a feeder does to the main line of a railroad. What is equally important, it would permit the prompt closing of branch roads and railway crossings as they become unnecessary through the development of the highway system, in much the same manner as branch line mileage is abandoned on the steam roads.

Would Eliminate Many Grade Crossings

The large mileage of these branch highways now obsolete by reason of the building of the existing trunk

system, carries its proportion of unnecessary grade crossings. These crossings are being continued (although there is every reason why they should be closed) because, through lack of correlation, definite planning, and in the absence of any central authority, there is usually an insistent local demand for their continuance or for a grade separation.

Grade separations are frequently enforced at such crossings because utility commissions in many states have no legal authority to close such highways or compel suitable relocation, although aware that the public interest as a whole does not demand either the grade crossing or the separation. Utility commissions are usually unwilling to assume responsibility of continuing a crossing at grade when its hazardous condition has been officially called to their attention, and are also not inclined to assume responsibility for modern forms of highway protection. Highway legislation in most states needs a thoroughgoing renovation to put it in step with modern conditions, a fact well known to most highway engineering authorities.

Many Lives Would Be Saved

The federal government and the states have already paid more than \$994,000,000 for the construction of about 50,000 miles of federal-state highways, and in the interest of the railways and the highways, as well as in the interest of public safety and economy the excess highway grade crossings thus rendered unnecessary should now be closed. This action should be immediately followed up by the removal of the extra hazardous grade crossings which now exist on every railway and are dangerous alike to the highways and the railways. Some way should be found, through suitable legislation if necessary, whereby state highway commissions will be required to give preferred attention to such crossings, even though it reverses present policies of federal-state highway construction.

If plans of this character were carried out it would reduce the total number of existing grade crossings in the United States from approximately 250,000 to somewhere about 75,000, of which only 10,000 are on the main trunk or federal-state thoroughfares. It would save a vast army of human lives each year, reduce an appalling list of casualties and result in the saving of staggering sums now being expended by the public through the agency of the railways and the highways for the maintenance of unnecessary grade crossings.

The present planning of federal-state highway roads in practically every state takes no definite account of these hazardous crossings, and railway funds which would otherwise be available for aid in grade crossing elimination, are thus diverted by the action of state highway commissions to crossings which bear little or no relation to the existing extra hazardous crossings.

There is also urgent need for agreement between public authorities and the transport system for uniformity in the protection of the less hazardous grade crossings and intersections. These crossings constitute by far the greatest percentage of the total grade crossings and offer the greatest potential hazard for the public. A proper understanding of this problem is of first importance, to be followed up by scientific treatment consistent with public safety requirements. Highway commissions often fail to appreciate why manually-operated protection is now so frequently found insufficient and unsafe to cope with modern conditions. The installation of automatic warning devices, when thoroughly standardized as to aspect and location and supplemented by an educational campaign for contributory action by the highway user, is recognized by experts as the best and surest means of

protecting highway grade crossings. It would seem that the accomplishment of this objective is so essentially in the public interest that its importance need not be further dwelt upon, but until the railways can deal with a national public authority with sufficient jurisdiction, this menace seems destined to continue.

Vast sums of money are being expended annually for grade crossing elimination; yet the number of grade crossings continues to increase each year by official sanction, regardless of the almost criminal hazard and liability thus created. Some eastern states do not permit public authorities to create additional grade crossings and where this rule has been in effect for a number of years, it has been found to bring about excellent results.

Federal Aid Program Is Large

The federal-state trunk highway system now completed comprises 53,958 miles. The program for extension contemplates its development into 70,752 miles, and when finally completed 200,347 miles, with future possibilities for development under the existing law. These highways are being built parallel to and across the railway system whenever in the opinion of the state highway authorities it appears desirable. Many of these crossings are new and additional to what formerly existed. In some cases the released crossings are closed, but as heretofore pointed out the net result is to *increase* rather than decrease the number of highway grade crossings.

Under the provisions of the federal law, to which reference has been previously made, the government has already expended \$439,339,402 to aid in the construction of the federal-state highway system, and the state tax payers have expended \$555,340,454. The first act of Congress was approved July 11, 1916—"An Act to provide that the United States shall aid the States in construction of rural post roads" (39 Stat. 355). In the first section it is provided:

"That the secretary of agriculture is authorized to co-operate with the states through their respective state highway departments in the construction of rural post roads; but no money apportioned under this act shall be expended until the legislature shall have assented to the provisions of this act. * * *

The passage of this law resulted in the creation of the United States Bureau of Roads and the organization of state highway commissions in several states. These were charged with the duty of building the federal-state highways in conformity with the provisions of the act.

Powers of Federal Bureau Are Limited

The functions of the Bureau of Public Roads is limited by this act and is largely devoted to the apportionment of federal appropriations to the states in the manner prescribed by law. Unfortunately the bureau does not have sufficient or proper authority under this law to regulate standard practices; beyond this its functions are largely of an advisory and administrative character.

The bureau is admirably organized and administered. It is composed of well trained engineers qualified in the science and art of highway construction and it is unfortunate for the general public that the law does not give them sufficient power or authority to insist upon uniform standards for construction and maintenance. In the interest of public safety and convenience, the power and authority of this bureau should be enlarged along lines similar to the engineering corps of the United States Army. It should be taken from the Department of Agriculture, where it does not belong, and placed under the Interstate Commerce Commission or under the Department of Commerce, depending upon how the organization is effected.

While the state laws creating the highway commissions of the several states differ materially, their prin-

cipal function is substantially the construction and maintenance of the federal-state highway system, which, as stated, constitutes a very small part of the state highways. In some states they have little or no jurisdiction over the remaining state highways. They are largely political in character, but fortunately through provisions of federal requirements the expenditures are made through a competent body of state engineers well qualified for their duties, and their jurisdiction should be extended over all the highways in their respective states with respect to construction, maintenance, highway marking, and standard practices.

Utility Commissions Should Control Crossings

As laws of all the states now vest control of the principal transport agencies in their respective public utility commissions, it is difficult to see why a duplicating body in the shape of a state highway commission with independent authority should also exist. Simplicity of administration and public safety would be greatly advanced if the highway commissions were abolished and the administrative functions performed under the state public utility commission to whom the state bureau of highway engineering might well report. A change of this character would be of outstanding advantage in the administration of the public highway system. For the same reason it follows that the jurisdiction of the public utility commissions should also be extended over county, township and municipal roads, insofar as it affects safe and convenient public operation, and control of railway grade crossing and highway intersections, similar to the Illinois law which places the control of all grade crossings in the state within the jurisdiction of its commerce (public utility) commission. This arrangement would permit utility commissions to extend the jurisdiction of their expert transportation staffs (now functioning for railway or water transport) so as to include intrastate highway and waterway transport as well.

The greatest stumbling block in the way of an orderly program for the elimination and protection of unnecessary highway grade crossings is the lack of common understanding on the part of the parties immediately concerned regarding the apportionment of cost for the changes. It may be said at once that there is little doubt but that the railways would look with favor upon some systematic and orderly program of grade crossing elimination if the costs were equitably apportioned with due consideration to existing extra hazardous crossings and the closing of unnecessary crossings.

Problem Is an Economic One

The United States Bureau of Public Roads has outlined some admirable provisions with respect of grade separation. It considers that while ultimate elimination is the final solution, it is, after all, an economic and financial problem, in which the more dangerous crossings on the federal-state highway system should be first considered, and apparently recognizes in principle the fact that there are many extra hazardous crossings on the several railroads which are not on the federal aid thoroughfares, concerning which the railroads must deal with state, county, municipal or other public bodies, and to which railway funds must also be allocated, but as the bureau is concerned, under the law, with aiding in the construction of what is in effect the national highway system the government is directly interested in the elimination of the more dangerous crossings created thereby.

Federal law has clearly anticipated this in Section 2 of act of Congress previously mentioned, and provides, among other things:

"That for the purpose of this act the term 'rural post road' shall be construed to mean any public road over which the

United States mails now are or may hereafter be transported excluding every street and road in a place having a population, as shown by the latest available Federal census, of two thousand five hundred or more, except that portion of any such street or road along which the houses average more than two hundred feet apart; * * * necessary bridges and culverts shall be deemed parts of the respective roads covered by the provisions of this act."

In making appropriations for the Post Office department for the fiscal year ending June 30, 1923, and for other purposes, Congress further provided:

"For the purposes of this section and of the acts heretofore making appropriations to aid the States in the construction of rural post roads the term 'bridges' includes railroad grade separations, whether by means of overhead or underpass crossings." (42 Stat. 660.)

Also by Section 8 in Regulation 6 of the "Rules and Regulations of the Secretary of Agriculture for Carrying Out the Federal Railway Act" it is stated:

"Grade crossings occurring on the Federal Aid Highway System shall be classified for priority of improvement by agreement between the state highway departments and the Bureau of Public Roads."

Some States Nullify Intent of Law

It will be seen from the foregoing that it is clearly the purpose of Congress to aid in the elimination of the grade crossing hazard which the construction of the federal aid system of roads must necessarily encourage. The federal act was originally passed as a rider to the Agricultural bill and shows evidence of being somewhat hastily drawn and in the light of its practical application is loosely worded and susceptible of various interpretations. This fact has permitted a number of state highway commissions to nullify the clear intent of Congress and apply the federal funds that should otherwise be spent on grade separations for the construction of additional highways elsewhere in the state and by taking advantage of state laws passed during the horse-drawn vehicle age they seek to compel the railways to assume a far greater portion of the expense than can be reasonably justified. This is not surprising because, as previously stated, state highway commissions have no responsibility to the public for the safety and convenience of railway transport.

Meanwhile the railways are called upon to deal with other highway bodies in the cities and counties with respect to local problems of grade separation over which the state highway commission has jurisdiction, each applying different reasonings and formulas, and none of them directly concerned with the effect on public transport service by the railway. It is not surprising, therefore, that controversy results and essential grade separations are unduly delayed, and often unsatisfactorily executed when finally undertaken.

Apportionment Should Reflect Benefits

It is a well developed principle of economics and in harmony with sound business methods that apportionment of cost for public improvements of this and like character should be undertaken on the basis of the benefits received, but it is very difficult in some states to get highway commissions or other highway authorities to concur in this principle. An arbitrary assessment irrespective of the benefits received is wrong in principle and contrary to the spirit of the common law. Federal and state laws relating to appropriations for highway construction should be so amended as to require a fixed portion to be available only for grade separation projects. Until some action of this kind is written into the statutes, public safety at railroad crossings must remain largely a matter of policing by the railroads with such assistance

from local communities as their officers may for the time being persuade them to give.

Cost Apportionment

The same principle, of course, applies in the apportionment of cost to the protection of a vast number of hazardous and other crossings where highway protection is necessary. Changed conditions of public travel require, where the hazard is sufficiently great, that the public will be protected and that the costs be apportioned on the basis of the benefits accruing alike to the user of the highway and the user of the railway and the other political sub-divisions or interests benefited insofar as their interests can be shown. An application of this principle would permit better and safer protection than is now possible when public authorities undertake to saddle the expense on a single interest and divert the tax funds collected for safe and proper maintenance to other purposes.

It will be seen from the foregoing that highway grade crossing protection or elimination is a national question and that the public is interested through its control of the railroads on the one hand and the highways on the other hand. The federal government is equally interested because of its control over interstate transportation. Various other agencies are equally interested, for example, the bus or truck lines operating for hire, or other interests including the railroads as the facts may develop.

On Basis of Benefits

The apportionment of cost should be on the basis of benefits received, both with respect to elimination and crossing protection, and standard practices should be adopted which will represent the best and most economical forms of construction and maintenance throughout. If this is carried out with proper enabling legislation that will provide for the development of a plan for the elimination of dangerous crossings, and insure protection for the remaining highways of lesser importance with warning signals or signs that have been so thoroughly standardized as to insure that the public will become accustomed to them, it will result in the lessening of the daily loss of life and the unnecessary costs incident thereto.



Chair Car on the Chicago & Eastern Illinois



Baring Cross Bridge of the Missouri Pacific at Little Rock, Ark., After South Spans Had Been Washed Away—Photo from International

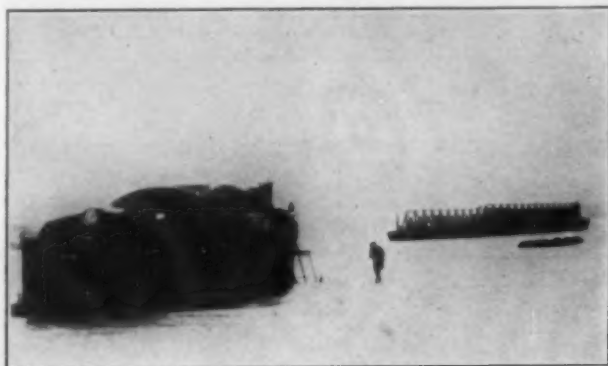
Flood Continues to Inflict Damage

Railroads of lower Mississippi valley prepare for flood crest, while those farther north rush repairs

WITH the crest of the flood in the vicinity of Natchez, Miss., the flood waters of the Mississippi and its tributaries north of Helena, Ark., are receding and the railways in that section are taking stock of the damage done and making every ef-

fort to hurry repairs so that normal service may be resumed as soon as possible. The situation south of Helena continues to become more threatening. New levee breaks are being reported daily and, with each break, more railway lines go under water. Four breaks occurred in levees of the Arkansas river, within the past week, and these, together with overflows from the White and Ouachita rivers, have flooded practically all of southeastern Arkansas, including McGehee, Ark., a division terminal on the Missouri Pacific. No further breaks have occurred in the Mississippi river levees in Arkansas and Mississippi, but levee breaks and overflows from the Yazoo and Sunflower rivers in Mississippi have flooded additional lines of the Yazoo & Mis-

issippi Valley, until there are now about 275 miles of that railroad under water, principally on the Greenville division. The only Mississippi river levee to give way during the week was at Glasscock, La., where four serious levee breaks occurred, flooding Concordia parish and threatening several surrounding parishes. The Red river levee broke at Vick, La., in Avoyelles parish and also at East Point, in Red River parish. These breaks have caused a practical suspension of operations of the Louisiana Railway & Navigation Co., and have seriously interfered with the operations of the Texas & Pacific.



International

The Car Ferry Between Natchez, Miss., and Vidalia, La.

fort to hurry repairs so that normal service may be resumed as soon as possible. The situation south of Helena continues to become more threatening. New levee breaks are being reported daily and, with each break, more railway lines go under water. Four breaks occurred in levees of the Arkansas river, within the past week, and these, together with overflows from the White and Ouachita rivers, have flooded practically all of southeastern Arkansas, including McGehee, Ark., a division terminal on the Missouri Pacific. No further breaks have occurred in the Mississippi river levees in Arkansas and Mississippi, but levee breaks and overflows from the Yazoo and Sunflower rivers in Mississippi have flooded additional lines of the Yazoo & Mis-



The Yards of the I. C. at Mounds, Ill., Were Partially Flooded

The Louisiana & Arkansas line is under water for 30 miles at its eastern end.

Because of flood conditions, the Interstate Commerce Commission issued service order No. 44, on April 23,

directing the railroads to forward traffic moving to or through Arkansas, Louisiana, Missouri or Mississippi by the most available routes, regardless of the routing of shippers or connecting carriers, and suspending all car service rules, regulations and practices in the affected territory, so far as they conflicted with the order.

All of the railroads in the flooded district and several railroads out of the flood, which were in position to do so, have aided the flood relief very materially. Thou-



International

Flood Refugees Sheltered in Box Car at Vicksburg, Miss.—
Thousands of Box Cars Are Being Turned Over to
Refugees as Living Quarters by the Railroads

sands of cars of supplies for the flood refugees have been hauled free of charge and hundreds of trains run to haul refugees to places of safety. Thousands of box cars were spotted by the railroads for use as living quarters by refugees. The Missouri Pacific ran a special train of vegetables from the Rio Grande valley, contributed by citizens of that vicinity, to the flood zone, and its chief surgeon, together with a number of his assistants, went to the flood area to render medical aid to the flood sufferers. The Pullman Company sent 24 sleeping cars to Vicksburg, with a diner and 32 employees, to house refugees from the flooded sections of Mississippi. All of the lines in the flood zone have rendered extraordinary assistance to the refugees.

Even before the water receded, the railway agricultural and development representatives have gone into the flood territory, to assist in the rehabilitation of the inundated land in every possible way, and particularly to instruct the farmers as to what crops can be raised after the water subsides. The flooded area is principally a cotton producing section and, in many cases, it will be too late to plant this crop when the water finally leaves it. The agricultural and development agents will make special studies of individual cases and, on the basis of their recommendation, a greater diversity of crops should be had in this section this year than ever before.

Following is a summary of the conditions on the railroads in the flooded district:

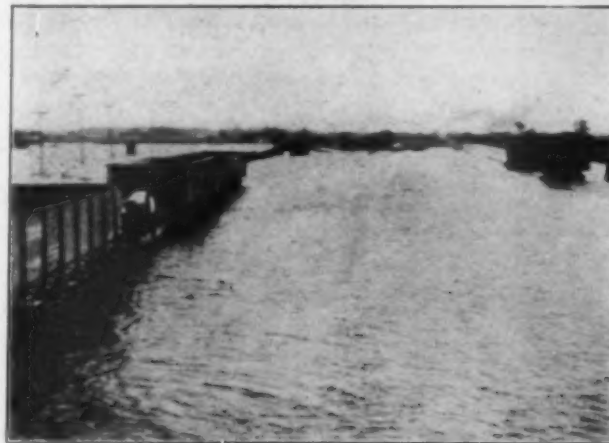
Chicago, Rock Island & Pacific.—Floods cost the Rock Island about \$300,000 during April. In Oklahoma, excessive rains during the first week of the month resulted in minor washouts on the main line between Waurika, Oklahoma City and El Reno, also on the branch line from Waurika to Anadarko and Bridgeport. Three thousand feet of track and a steel girder at the crossing of the Washita river, Ninnekah, Okla., were

washed out on April 7. Main line service was annulled for four days. During this period, trains were detoured over Rock Island branch lines from Waurika to Anadarko and Chickasha. A cloudburst at Wister, Okla., on April 17 resulted in the Poteau river overflowing its banks at Caston and flooding the town and the tracks with five feet of water. This water receded quickly and train service was resumed within six hours.

Damage in Arkansas caused by the Mississippi river and its tributaries was as follows: Beginning with April 13, heavy rains in Arkansas resulted in minor washouts on branch lines. These heavy rains and the gradual flood tide of the Mississippi, St. Francis, White, Cache and Arkansas rivers resulted, on April 19, in high water making the track impassable between Brinkley and Biscoe, 14 miles. Track in this section was six feet under water in some places, and debris, including 39 frame houses, was washed against the embankments. It was impossible to make repairs until the water receded. This occurred on April 30, and the track was made passable at 12:30 p. m., May 1, by the use of large repair gangs. During the same period minor washouts occurred between Little Rock and Hot Springs at Benton, Ark., and Haskell, service on this branch being suspended about 48 hours.

Columbus & Greenville.—This line is out of service from Colonytown, Miss., to Greenville, 41 miles, because of the break in the levee at Stops Landing, north of Greenville. The water is now at a standstill and it will be impossible to estimate the damage to the railway until it recedes. Much of the track is under backwater, where the damage should not be great, but in some places a swift current is causing havoc to roadbed, track and structures.

Illinois Central—Yazoo & Mississippi Valley.—Approximately 335 miles of line have been covered by flood waters from the Mississippi river and its tribu-



International

The C., B. & Q. Yards at Beardstown, Ill., Under Backwater
from the Illinois River

aries. The principal damage has been to the lines of the Y. & M. V. in the lower half of the Mississippi delta as a result of the break in the levee at Scott, about 12 miles above Greenville. The following lines were covered by flood waters as a result of this break:

Greenville Division:	Miles
Cleveland District—Shaw to Vicksburg.....	95
Riverside District—Lobdell to Riverside Junction.....	65
Silver Creek District—Silver City to Kelso.....	41
Yerger Branch—Leland to Yerger.....	16
Helm Branch—Helm to Jacobs.....	12

Leland District—Metcalf to Leland.....	Miles 7
Glen Allen Branch—Hampton to Glen Allen.....	2
	238
Memphis Division:	
Sunflower District—Moorhead to Yazoo Junction.....	46

Operations have been discontinued on all these lines. The spread of flood water from the crevasse above Greenville and the back water from the Yazoo river also have resulted in covering about 1,000 feet of track in the vicinity of Yazoo City (on the Louisiana division), but operations have been continued through this area. On the Woodville district of the New Orleans division about 3 miles of line in the vicinity of St. Francisville, La., have been flooded, necessitating the suspension of operations on this district, the length of which is 42 miles.

On the Memphis Terminal division, about three-quarters of a mile of line in the vicinity of West Junction have been flooded, resulting in the suspension of operations. Trains have been detoured through Non-

out of service April 14 and was restored to service April 29.

No part of the main line of the Illinois Central between Chicago and New Orleans has been covered by flood water except for about $3\frac{1}{2}$ miles between East Cairo and Wickliffe, Ky., on the Tennessee division. The water here was for a time over the rails for a depth of about 14 in., but it has now receded. Operations were not suspended at any time, however. It is too early to make any estimate of the property damage as a result of the flood for it will not be until after the water has receded that the damage to roadbed can be ascertained.

Kansas City Southern.—This line is at present entirely free from the flood, which caused an estimated damage of \$61,000. Normal service has been resumed at all points.

Louisiana & Arkansas.—This line is having no trouble at either of its two crossings of the Red river, but has about 30 miles of track, from Rhinehart, La., to



Greenville, Miss., Under Water After Stops Landing Levee Broke.—Note Box Cars in Foreground, Spotted for Refugees by Y. & M. V.

connah yard. On the Clarksdale district of the Memphis division, the southbound main is under water from near West Junction to Lakeview, a distance of 7 miles. Operations have been continued, however, over the northbound main line. The latter is under water for about 2,000 feet in the vicinity of Lakeview, but there has been no suspension of operations. The line from East Cairo to Paducah, Ky., a distance of 34 miles, was out of service from April 16 to April 23 as a result of flood water covering the line between East Cairo and a point $2\frac{1}{2}$ miles south of Barlow, a distance of 5 miles.

On the St. Louis division (in Illinois) the Murphysboro district was flooded between Grand Tower and Gale, a distance of 22 miles. Operations were discontinued April 17 and have not yet been resumed. On the same district the line between Olive Branch and Mounds, a distance of 7 miles, went out of service on April 14 and was restored to service April 30. The Mound City branch of the St. Louis division, from Mounds to Mound City, a distance of three miles, went

the Mississippi river, under water, on which it has been necessary to discontinue service. About one-half of the distance is on a 10 to 18-ft. embankment. The track in the affected district is all anchored on the bank and bridge ends subject to wash have been sandbagged. So far, the overflow has been confined to backwater, but additional levee breaks are expected, which will create a current in some places. With the precautionary measures adopted, it is expected that the damage will be relatively small.

Louisiana Ry. & Navigation Company.—This company's line was put out of service by a break in the levee at East Point, La., in Red River parish, about 40 miles south of Shreveport. Further difficulty was experienced in Concordia parish on the Mississippi from the Glasscock levee break, and in Avoyelles parish from overflows from the Red river. The crest of the flood is approaching the territory served by this line and further inundation is expected.

Louisiana Southern.—This line was directly in the

path of the flood released at Poydras, below New Orleans, when the levee at that point was dynamited in an attempt to reduce the flood crest at New Orleans. All rolling stock was removed from the section of the railroad which was flooded and all buildings were protected by anchoring. No estimate of the damage done will be available until after the water has gone down.

Missouri-Kansas-Texas.—Washouts and service interruptions on this railroad were reported fully in last week's issue. It is estimated that the damage done by water will amount to considerably less than \$100,000.

Missouri Pacific.—No embargoes have been put out on through traffic and through freight service is being maintained in all cases, although many of the local points on this line are under water and much detouring is necessary. The portions of lines under water, according to latest reports, were as follows: Howardton, Ill., to Cairo; Charleston, Mo., to Belmont; Neuhardt, Ark., to Marianna; Pine Bluff, Ark., to Clarendon; Fairfield, Ark., to Arkansas City; Dermott, Ark., to Lake Village; Felsenthal, Ark., to White; Camden, Ark., to Lester.

For the most part, the Arkansas lines involved are in the extreme southeastern corner of the state, in the vicinity of the White, Arkansas, Ouachita and Mississippi rivers. Practically all of the section of southeastern Arkansas bounded by these rivers is under water, as a result of four serious breaks in levees along the Arkansas river, at South Bend, at a point a few miles north of Osceola, between Pendleton and Medford, and just north

providing for the installation of double track and additional yard tracks and other facilities at Little Rock and North Little Rock, to increase the efficiency of operations over the Rock street bridge, over which all traffic must now move since the other bridge was washed out.

Mobile & Ohio.—After several days' interruption, through service has been resumed between St. Louis and Mobile, without detours. No estimate of the loss suffered when water covered the tracks between Tamms, Ill., and Cairo is yet available, but the amount involved is small.

St. Louis-San Francisco.—The estimated amount of flood damage to this railroad is \$175,000 in addition to which \$125,000 was spent for protection work. The principal section affected by the Mississippi flood proper was the River division, between St. Louis and Memphis. Water was over the tracks, as a result of the break of the Mississippi river levee at Dorena, Mo., to a depth of as much as 4½ ft. between McBride and Cape Girardeau and between Lilbourne and Kewanee, on April 17, and it was necessary to annul all through passenger service between St. Louis and Memphis on that date. This service was resumed on April 29. At the height of the flood, 20 miles of line was under water in various places.

The ballast on this division is of Birmingham slag, and this ballast was reinforced with crushed rock for several miles. A rampart of crushed rock in sacks was also built along the track to hold it in place. Three hundred thousand sacks of crushed rock were used to hold the



Arkansas City, Ark., Flooded Many Feet Deep.—Missouri Pacific Train Caught in the Flood Is in the Foreground

of Blytheville. Minor breaks have also occurred along the Ouachita and White rivers in this section.

The situation at Little Rock, where one end of the Baring Cross bridge was washed away, as reported last week, and where it was necessary to close the shops at North Little Rock for a few days because of high water, is improving rapidly. The most serious situation at present existing on the Missouri Pacific is at McGehee, Ark., a division terminal. Here the shops are inundated, as are many of the tracks. A portion of the yard at this point is on the highest ground in the vicinity and is now the only part of McGehee which is out of water. The city water system has been rendered inoperative by the flood and most of the town's water supply is at present procured from the storage tanks at the Missouri Pacific shops.

An appropriation of \$200,000 has been approved,

track and three rock crushers devoted their entire time to supplying the Frisco with rock for several days. These measures proved effective and no track was washed out. Several panels of the bridge at Lilbourne, Mo., went out, but, within a few hours, bridge gangs working in the water with two floating pile drivers had driven 17 bents and section gangs had reinforced the approaches with rock-filled bags. Partial service was operated on this line during the time through service was suspended.

The Kansas City-Memphis line was threatened for a time, and some trains were delayed, when an overturned scow struck the trestle between Marked Tree, Ark., and Trumann. The scow was disentangled after several hours and the damage repaired quickly, although the line was never entirely out of service. On the Central division, a cloudburst in the Cavanaugh mountain region, April

13, flooded the Leflore bottoms and washed out a short piece of track below Ft. Smith, which delayed service for a few hours. The Little river also washed out some track near Hope, Ark., on the Hope-Ardmore branch, but this damage was repaired quickly. Three bents were washed out of a trestle over a drainage canal in the St. Francis basin on the Southern division, and the Current river took out a stretch of track between Portia and Black Rock, but the delays ensuing amounted to only a few hours in each case.

St. Louis-Southwestern.—Service on this line was interrupted at several points and considerable track was under water. A break in the levee at Gorham, Ill., on the Mississippi river, hampered service between St. Louis, Mo., and Thebes, Ill., and the break at Dorena, Mo., flooded practically all of the branch between Birds



I. C. Tracks Sandbagged Along the Cache River at Mounds, Ill.

Point, Mo., and Malden, Mo., also the branch from Lilbourne, Mo., to New Madrid. The St. Francis, the White and the Arkansas rivers also flooded many miles of tracks, particularly in the vicinity of Paragould, Ark., and Clarendon. Through service has been maintained by means of detours, and since May 1, practically normal service was restored. The management is still unable to determine the amount of physical damage suffered.

Effect on Farmers

A complete survey of agricultural conditions along the line shows that approximately 250 farmers in each of the 12 counties affected by the overflow cannot secure funds to make this year's crop. Tenants will also be reluctant to return to farms and many are planning to secure jobs in rebuilding highways, bridges and buildings; arrangements are being made to finance substantial farmers and the reduction in acreage cultivated in overflowed sections will not exceed 20 per cent.

Texas & Pacific.—This company is preparing for many miles of track inundation, as the crest of the flood reaches the lower Mississippi and the Red rivers. The floods in Concordia and Avoyelles parishes, Louisiana, have already interfered with service on the main line to New Orleans, as have various minor breaks along the Red river. Further flood damage is expected as the high water continues.

Additional Train Control Installations Approved

WASHINGTON, D. C.

THE Interstate Commerce Commission has issued additional orders by Division 1 approving, in some cases with exceptions, installations of automatic train control devices on the Erie; Cincinnati, New Orleans & Texas Pacific; and Chesapeake & Ohio.

In the case of the C. N. O. & T. P., the commission has approved with one exception the installation of the auto-manual system of the General Railway Signal Company on the first and second districts, under the commission's order of June 13, 1922, and under its second order of January 14, 1924, from Ludlow, Ky., to Somerset, Ky., 157 miles, of which 79 miles is double track, with 102 locomotives equipped, and also from Somerset to Citico Junction, (Chattanooga) Tenn., 175 miles, of which 84 miles is double track, with 75 locomotives equipped. The total cost of the first installation was reported as \$292,336, and that of the second as \$267,542. The exception is that the reset conductor must be so located that the brakes cannot be released after an application has been automatically initiated until the train has stopped. It is stated that this was not the case on all locomotives at the time of inspection.

Following the exception the report contains ten paragraphs of cautions regarding maintenance, inspection, etc., calling attention to potential false-clear failures or other deficiencies observed during the government tests.

The installation of the auto-manual system of the General Railway Signal Company on portions of the Delaware and New York divisions of the Erie under the first order was approved with three exceptions. The installation extends from Port Jervis, N. Y., to Susquehanna, N. Y., 104 miles, double track, with 94 locomotives equipped. The cost was reported as \$190,116. The exceptions are as follows:

1. The ground reset unit must be so located or so constructed on all locomotives as to require that they be brought to a stop after an automatic application before a release of the brakes can be effected.

2. Pusher and other locomotives operated backward in road service with the current of traffic must be equipped with the train-stop device for such movements.

3. Non-equipped locomotives (including revenue motor cars) must not be operated in road service in train-stop territory unless double-heading behind a locomotive, the train-stop equipment of which is in service.

Locomotives (including revenue motor cars) must not be run in road service from terminals in train-stop territory with the device cut out unless double-heading behind a locomotive, the train-stop equipment of which is in service.

When necessary to operate them through to terminals with the train-stop device cut out on account of failure enroute, special protection must be provided.

Following exceptions are 12 paragraphs of cautions.

In the case of the Chesapeake & Ohio the commission has approved the installations of the Union Switch & Signal Company's automatic stop on portions of the Richmond and Clifton Forge divisions, under the first and second orders. The first installation extends from Orange, Va., to Staunton, Va., 70 miles, single track, and the cost, including the equipment of 60 locomotives, was reported as \$785,205. The second installation extends from Staunton, Va., to Clifton Forge, W. Va., 55 miles, single track, and the cost was reported as \$267,592, no additional locomotives being equipped for this division. The device is of the intermittent induction type with forestalling feature and was approved without exception.

The report ends with two cautionary paragraphs, calling attention to possibility of false-clear operations.

Freight Car Loading

WASHINGTON, D. C.

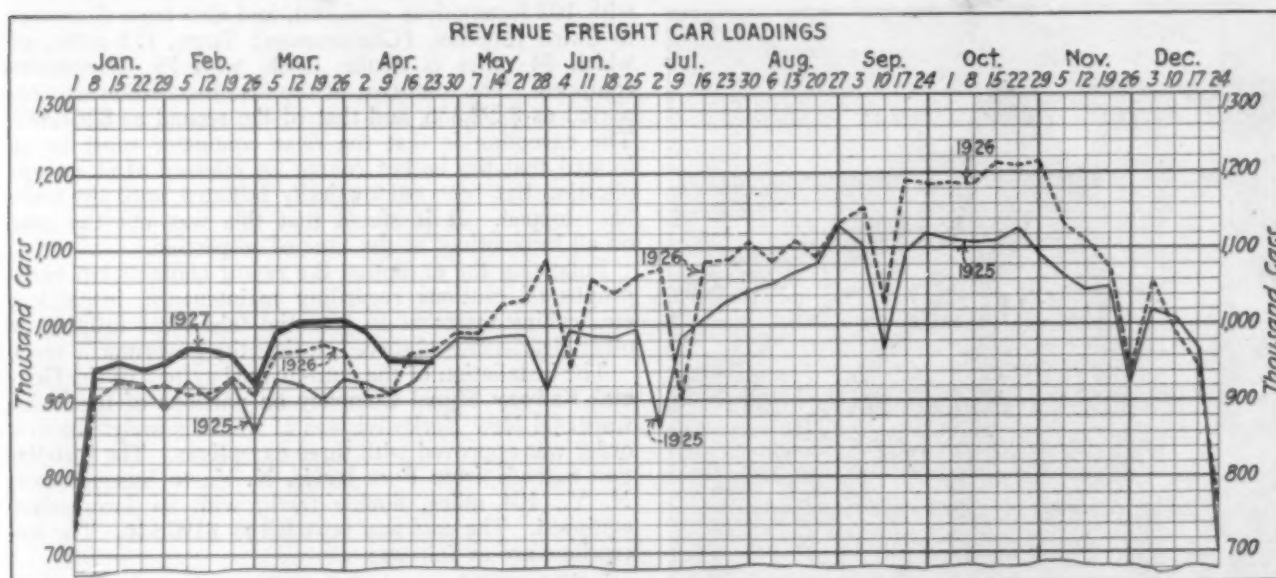
REVENUE freight car loading in the week ended April 23, aggregated 955,215 cars, a reduction of 17,943 cars as compared with the corresponding week of last year, due to the effects of the coal strike and the floods in the Mississippi valley. It was also a decrease of 5,971 cars as compared with 1925. Because of the opening of the lake ore movement there was an increase in ore loading, as compared with the corresponding week of last year, of 13,103 cars, while there was also an increase of 4,678 cars in miscellaneous loading, but other commodity classifications showed a reduction. Coal loading, 150,787 cars, showed a reduction

the same week had a surplus of 18,839 cars, including 16,600 box cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended April 23 totalled 58,596 cars, an increase over the previous week of 3,843 cars and an increase over the same week last year of 2,575 cars.

Commodities	Total for Canada			Cumulative totals to date	
	April 23 1927	April 16 1927	April 24 1926	1927	1926
Grain and grain products.....	6,733	5,734	6,257	126,659	106,953
Live stock.....	1,756	1,735	2,057	32,904	33,073
Coal.....	5,394	5,402	3,203	101,123	70,872
Coke.....	253	325	347	5,694	7,396
Lumber.....	3,784	3,560	3,648	51,618	52,944
Pulpwood.....	1,848	2,469	2,324	80,515	58,243
Pulp and paper.....	2,290	2,263	2,385	35,636	41,602



of 15,807 cars as compared with last year. The Pocahontas, Southern and Northwestern districts showed increases as compared with last year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading
WEEK ENDED SATURDAY, APRIL 23, 1927

Districts	1927	1926	1925
Eastern.....	227,557	236,994	226,767
Allegheny.....	197,504	204,189	197,219
Pocahontas.....	59,234	50,649	46,396
Southern.....	153,850	152,089	149,384
Northwestern.....	128,809	120,298	142,069
Central Western.....	124,244	135,139	125,995
Southwestern.....	64,017	73,800	73,356
Total West. Districts.....	317,070	329,237	341,420
Total all roads.....	955,215	973,158	961,186
Commodities			
Grain and grain products.....	35,921	38,379	34,123
Live stock.....	28,528	30,368	31,080
Coal.....	150,787	166,594	149,018
Coke.....	11,175	12,285	10,598
Forest products.....	65,832	77,692	77,280
Ore.....	28,074	14,971	42,495
Misc. l.c.l.....	260,872	263,521	255,732
Miscellaneous.....	374,026	369,348	360,860
April 23.....	955,215	973,158	961,186
April 16.....	956,875	964,794	923,844
April 9.....	959,474	929,343	918,400
April 2.....	992,745	928,303	923,400
March 26.....	1,008,888	967,945	932,769
Cumulative total, 17 weeks.....	16,229,384	15,778,583	15,509,239

The freight car surplus for the week April 8-14 averaged 254,095 cars, an increase of 15,378 cars as compared with the preceding week. This included 93,866 coal cars and 129,490 box cars. The Canadian roads for

Other forest products.....	2,846	2,723	3,346	53,273	56,878
Ore.....	1,495	1,449	1,389	22,456	22,690
Merchandise, l.c.l.....	18,324	15,845	17,381	262,339	244,199
Miscellaneous.....	13,873	13,248	13,684	192,018	184,264
Total cars loaded.....	58,596	54,753	56,021	964,235	879,114
Total cars received from connections.....	37,691	44,894	39,436	629,776	598,711



International

U. S. Marines Ready to Leave Boston En Route for Duty in China



Arbitration Board Hears Western Conductors and Trainmen

Representatives of Western railway employees maintain that wage increases should not be determined by ability to pay

THE wage increases asked for by conductors and trainmen on western carriers should not be determined by the ability or inability of the carriers to pay, nor upon the justness and reasonableness of freight and passenger rates in western territory but on the justness and reasonableness of wage rates alone, according to the statements of L. E. Sheppard, president of the Order of Railway Conductors, and W. N. Doak, acting president of the Brotherhood of Railroad Trainmen at the opening of hearings at Chicago on April 27 before the board of arbitration on the application of the Order of Railway Conductors and the Brotherhood of Railroad Trainmen for increases in pay of \$1 per day. H. A. Scandrett, vice-president of the Union Pacific, representing the carriers, opposed the increases requested on the ground that present wages are fair and adequate and because of the low earnings of western roads. The testimony of the conductors and trainmen occupied the first eleven days of the hearing, which is expected to last until May 15.

The Order of Railway Conductors is represented by L. E. Sheppard, president, J. A. Phillips, vice-president, F. H. Nemitz, vice-president, and A. T. Wright, vice-president, and the Brotherhood of Railroad Trainmen by W. N. Doak, acting president, and vice-presidents John Bannon, G. W. Anderson, A. F. Whitney, S. R. Harvey and J. H. McQuaid. In addition, each organization is represented by several members of an executive committee constituting a joint association of both. The railways' presentation is being made by the Conference Committee of Managers of the Western Railways with H. A. Scandrett, vice-president of the Union Pacific, and Kenneth F. Burgess, general solicitor of the Chicago, Burlington & Quincy as counsel.

The original request for increases in pay for con-

ductors and trainmen was made nationally on February 1, 1926. The western roads organized a Conference Committee of Managers to act for them, consisting of W. M. Jeffers, chairman, general manager of the Union Pacific; W. F. Thiehoff, vice-chairman, general manager of the Chicago, Burlington & Quincy; R. H. Allison, general manager of the western lines of the Atchison, Topeka & Santa Fe; F. Bell, general manager of the Great Northern; A. E. Clift, senior vice-president of the Illinois Central; L. C. Fritch, vice-president of the Chicago, Rock Island & Pacific; O. N. Harstad, general manager of the Chicago, Milwaukee & St. Paul; J. E. Hutchison, vice-president of the St. Louis-San Francisco; F. G. Nicholson, vice-president and general manager of the Chicago & Eastern Illinois; G. S. Waid, vice-president and general manager of the Southern Pacific Lines; W. Walliser, vice-president of the Chicago & North Western, and W. E. Williams, manager of the department of personnel of the Missouri-Kansas-Texas.

Conferences were held with representatives of the brotherhoods on April 5, 6 and 7, 1926, and were adjourned at the request of the employees. On May 3, 1926, further meetings were agreed upon but on April 29, 1926, the brotherhoods wired for an indefinite postponement which was granted. Following this action wage increases were obtained in the east by arbitration and in the southeast through mediation, and on February 10, 1927, the employees requested a resumption of negotiations for western conductors and trainmen. A meeting was held on February 23 at which the original request for an increase of one dollar a day was held in abeyance and a new demand of 7½ per cent of the 1925 basis of pay, retroactive to December 1, 1926, was presented. At meetings held on February 23 and 25 no

agreement was reached. On February 28 the managers requested the employees to join in mediation but the employees opposed it unless invoked by the carriers. On the same day the carriers asked the mediation board to participate and on March 4 Edwin P. Morrow and Samuel E. Winslow of the mediation board attempted to settle the dispute. On March 19 all parties agreed to arbitrate, the employees returning to their 'original demand of an increase of one dollar a day.

The roads selected as their members of the arbitration board, W. J. Jackson, chairman of the executive committee of the Chicago & Eastern Illinois, and J. W. Higgins, executive secretary of the Association of Western Railways, and the employees chose E. P. Curtis, secretary and treasurer of the Order of Railway Conductors, and J. A. Farquharson, vice-president of the Brotherhood of Railroad Trainmen, to represent them. Dr. W. M. W. Splawn, president of the University of Texas, and Edward C. Brown, general manager of the Brown-St. John Commission Company, Chicago, and at one time president of the Chicago Livestock Exchange, were chosen by the United States Board of Mediation to serve as neutral members. Dr. Splawn was selected as chairman.

Mr. Sheppard Presents Employees' Attitude

At the opening of the hearing on April 27 Mr. Sheppard made a general resume of the employees' standpoint. He said in part:

"We enter these proceedings fearful that you will be called upon to decide this very important issue on the usual reasons advanced by the carriers, namely, cost of living, ability to pay, or freight and passenger rates—subjects over which the employees absolutely have no control and regarding which they are in no wise responsible. We have an abiding faith at this time that we will get to a point where the compensation of the men whom we represent will be based upon what is exacted of them, and upon the intelligence and diligence that they display in the performance of their duties, and that, at last, we will find a correct measure by which to estimate what should be paid for the service rendered. Most of the wage adjustments of the past have been settled on expediency more than on justice.

"We believe that the requests are reasonable and not extravagant as compared with the compensation paid men who, perhaps, do more mechanical or physical labor, but who do not have to give the intelligent service required of the railway employee, nor are they subjected to the hazards in other employments to which the railway employee is subjected. We will endeavor to show that the productivity or the results of the labor of these men whom we represent is greater today than it ever was; that they are not paid out of proportion and are not unduly paid for the service rendered.

"We hold that ability to pay should not be held up against the conductors and trainmen, because they are not working on a co-operative basis. They have no plan of profit sharing. We hold that where men are required to perform and to give intellectual service, they are entitled to a little more than the cost of living, and more so, when we take into consideration all the conditions that a railway employee has to contend with. He surely should have a little more than enough to exist upon, and he should have, by prudence and diligence, sufficient income to acquire a little for the so-called rainy day.

"Unfortunately, the question of rates of the railway companies has been coupled with the compensation paid to its employees. We appreciate, of course, that the expenditures of a railway company must be regulated largely by its income, but that is a pernicious doctrine because, carried to its logical conclusion, railway employees would be expected to work for less and less all the time, in order that the public might profit."

The fact that the railroads only require as many men to handle the business as the traffic demands and when business falls off the conductor drops back to the position of brakeman and the brakeman drops back to the position of extra brakeman or else there is no employment whatever, was given as another reason for the granting of increases. Other arguments advanced referred to the expenses of men in train service while away

from home, the cost of uniforms, and the number of reports which the conductors are now required to make out.

Carriers Cannot Bear Burden of Increase

Mr. Scandrett, speaking for the carriers, said:

"It is our position that the present rates of pay received by these men are certainly fair and adequate. They represent a level that is within five per cent of the peak of all time. There may be labor in other industries, such as the building trades, where a peculiar situation exists, where the level relative to the pre-war level is somewhat higher. But if you will take the average of all industrial labor in the western territory, you will find that on the average that labor is receiving far less than five per cent under the peak scale. By reason of the changed economic conditions, the purchasing power of the present wages in the aggregate is considerably greater than the purchasing power of the dollars which were received under this peak scale. It is due to the fact that during the past four or five years the cost of living has been reduced more than five per cent, which is substantially the reduction from the peak scale in the wages of the trainmen and conductors.

"By way of contrast to that five per cent reduction which has been sustained by these men in the matter of wages, the freight rates of the western lines have been reduced substantially 20 per cent on the peak of those rates, which was, in 1921, the first full year after the increase allowed by the Interstate Commerce Commission in 1920. It is of course common knowledge that the post-war depression hit the agricultural west much harder and much more severely and its effects have been much more lasting than in the industrial east or in the south-east. Because of the economic consequences of the acute agricultural depression, the western lines have been called upon by state and federal authorities to make repeated reductions in their transportation rates, with the result that their rates are now on a much lower level as compared with the pre-war level, than are the rates in either the south or the east. The railroads of the west in the past seven critical years have fallen far short of earning a fair return and are far short of the return that has been earned by the eastern lines and the lines of the southeast."

At this point Mr. Sheppard objected to the question of rates being a factor in this arbitration because neither the board, the railroads nor the employees has jurisdiction over them. "To predicate an arbitration on rates as one of the proper factors may be used in argument," he said, "but we protest most vigorously against recognizing it as a factor here." Mr. Doak added that the trends of arbitration do not provide that the case be determined on the ability or inability of the carriers to pay or upon the justness and reasonableness of freight and passenger rates in western territory, but that it be determined on the justness and reasonableness of the wage rates alone. The chairman stated the board would reserve the right to pass on the admissibility of the evidence as it is offered.

Conductors and Brakemen

Describe Working Conditions

Following the opening statements of the representatives, witnesses for the conductors were presented. Nine freight conductors, three passenger conductors and three brakemen on 15 different roads testified that additional tonnage is being handled since the adoption of larger locomotives and that a conductor's work requires a greater degree of skill and intelligence. The first witness, R. S. Rasey, a freight conductor on the Chicago, St. Paul, Minneapolis & Omaha, working between St. Paul, Minn., and St. James, testified that the introduction of Mikado locomotives caused the tonnage handled per train on this division to be increased from 1,785 tons to 3,500 tons. With the smaller locomotives five crews operated out of St. Paul and Minneapolis on time freight and from four to seven crews in chain gang and irregular freight service, while after the introduction of the larger locomotives four crews were regularly assigned to time freight and two crews to irregular and

chain gang service. On cross-examination by Mr. Scandrett, the witness stated that he earned from \$200 to \$270 per month in time freight service on a 117-mile run requiring 13 hours.

H. R. Van Nordstrand, a freight conductor on the Chicago & Eastern Illinois, testified along the same line. On cross-examination he stated that in 1926 he worked a total of 298 days and earned \$2,427, of which \$436 was for overtime.

T. J. Collins, a conductor and general chairman of the conductors' organization on the Atchison, Topeka & Santa Fe, testified that the earnings of 87 through freight conductors on that road averaged \$2,639 per year, or \$219 per month and the expenses of these men when away from home totaled \$320 per year or \$26 per month. A statement of expense from 81 passenger conductors averaged \$299 per year or \$25 per month, while the earnings of 204 passenger conductors who hold assigned runs handling scheduled trains averaged \$3,096 per year or \$258 per month. On cross-examination he stated that among approximately 150 conductors in local freight service and between 450 and 500 in through freight service, the highest amount earned in local freight service was \$2,923 and the lowest \$1,935, while these men worked 8,285 days in 1926 out of a possible 8,764 and that the highest amount earned by a through freight conductor was \$2,932 and the lowest was \$1,868.

C. E. Kolf, a passenger conductor on the Chicago, Burlington & Quincy running between Hastings, Neb., and Omaha, said that the train on which he worked carried from 5 to 22 cars and the number of passengers varied from 100 to 550. He stated that the engineman on the largest locomotives earns \$6.48 per 100 miles, the fireman \$5.23 and the conductor \$4.47. Cross-examination showed that for the month of March he worked 24 eight-hour days and received \$251 and that the amount earned in the year previous to March 31, 1927, was \$3,000.

Mr. Doak Makes Statement for Trainmen

On April 29, previous to the presentation of testimony in behalf of the trainmen, which followed that of the conductors, Mr. Doak outlined the basis for the request for increases in wages for trainmen. He said that the request is based on an increased productivity of the men and better service to the roads. In addition, increased tonnage of freight trains and larger passenger trains have increased the duties and responsibilities of trainmen and yardmen. They, by their increased efficiency, are producing more each year per man than ever before. He asked that certain differentials in wage rates, recognized between classes of employees prior to the European war, be considered in this case.

"We shall not attempt to deal with living costs in our presentation," he said, "for the very good reason that it is difficult to arrive at accurate living data. We are content to leave this problem to your judgment and experience. We would ask you to bear in mind that rents as well as other necessities have soared upward. Consideration should be given to increases in the size of families and the enlarged demands made by changed standards of living, dress and kindred things. The things considered luxuries of a year or so ago are now essentials.

"Our wage requests do not seek to reclassify forms of compensation or to change existing methods of payment; these are confined to questions of increased wages only. We ask you to consider basic rates as the proper gage of wage adjustments and to disregard any effort to deal with any total compensation presented by the carriers which is not separated in such a manner as will show the bases separately from other allowances. Neither overtime, special allowances nor constructive payments are proper subjects in making either wage comparisons or in fixing wage levels. Penalty payments, such as overtime or allowances for misapplication or violation of schedule rules, are not legitimate subjects for inclusion in wage tabulations.

"Allowances for men who are held at away-from-home points are not wages in reality but special allowances which in reality do not even compensate the men fully for the time so held. Sums paid as full days for less than a day's work when men are either restricted to this one class of service in any day or for which the carrier has a lien on their time should not be considered as time not worked. Excess miles should not be confused with basic rates, neither should the money made on long mileage runs be considered as reflecting day wage rates. The fact that some men make what may be considered large wages should not be confused with minimum rates for which many men must work."

Trainmen Testify

Following the statement by Mr. Doak, several trainmen testified as to the nature of their work and their duties. Charles Bogue, general chairman of the Brotherhood of Railroad Trainmen on the Union Pacific at Omaha, Neb., testified that in 30 trips made in a 30-day period in 1917 a crew running between North Platte, Neb., and Sidney handled 1,291 loads and 168 empties or 59,812 tons, based on the tonnage rating of the locomotive, while in 1923 in practically the same period a crew handled 1,337 loads and 812 empties or 78,571 tons, and in the same period in 1926 this crew handled 2,088 loads and 613 empties or 104,023 tons. E. I. O'Connor, a local freight brakeman for the Missouri Pacific, testified that on a run between Atchison, Kan., and Frankford, a distance of 78 miles, three brakemen unload from 45,000 to 125,000 lb. of l.c.l. freight.

T. C. Chalmers, a switchman on the Chicago, Burlington & Quincy at Galesburg, Ill., testified that a few years ago the yard at this point handled 3,000 cars in and out in a day, while at the present time from 7,300 to 7,400 are handled. The yard was formerly operated with from 12 to 20 riders on each hump who handled from 500 to 600 cars in a 12-hour shift, while at present there are 5 riders and they switch 500 cars in an 8-hour shift.

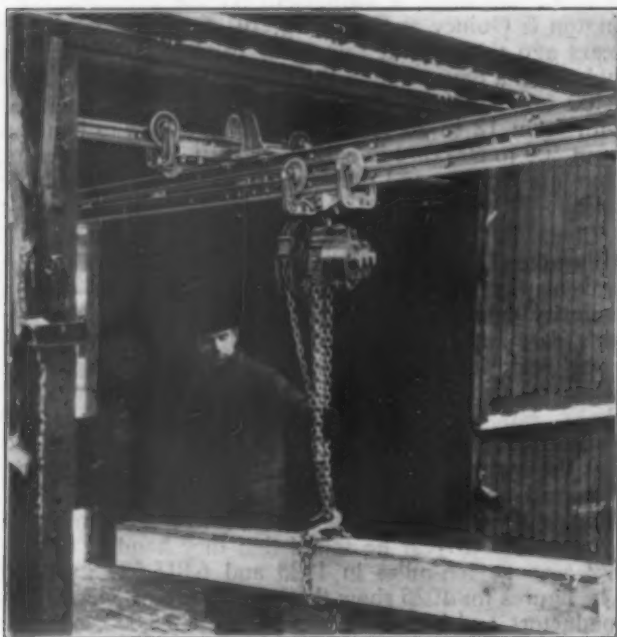
Clyde R. Vandervort, a brakeman on the Chicago, Milwaukee & St. Paul, stated on Tuesday that the junior brakeman working out of Miles City, Mont., had a seniority date of April 3, 1913, and the junior conductor's date was November 2, 1910. It takes about 14 years' seniority to hold a regular job braking and about 17 years' seniority to hold a regular job as conductor. G. W. Hunt, general chairman of the Brotherhood of Railroad Trainmen on the Oregon Short Line, testified that the number of freight conductors and brakemen on this road averaged 472 in 1923 and 362 in 1925. By dividing the revenue ton-miles by the average number of employees each year he found that they handled 5,477,572 revenue ton-miles in 1923 and 6,815,532 in 1925. The figures for 1926 show that an average of 347 freight conductors and brakemen moved 2,478,275,000, revenue ton-miles. In February, 1926, on the first, second, third and fourth districts, that is the territory from Green River, Wyo., through the state of Idaho to Huntington, Ore., a distance of 571 miles, from which emanate several important branches, there was no employee holding a regular position as brakeman who had less than 10 years' seniority; that would be the men hired in 1916. The last half of the men hired in 1918 had all been cut off the board and the first half of the 1918 men and practically all of the 1917 men were working on the extra list and a very large percentage of the promoted men were holding positions as brakemen. During the cross examination of one of the witnesses, Mr. Scandrett asked whether there has been any movement to reduce crews on the Oregon Short Line for the purpose of increasing the mileage to be made by the men and whether there is a difference of view between the two brotherhoods on that question. Mr. Doak objected to the question on the basis

that it involved a rule and they were not being arbitrated. E. B. McClean, train baggagemaster and general chairman of the Brotherhood of Railroad Trainmen of the Yazoo & Mississippi Valley, said that prior to 1920 there were 19 through freight and 3 local crews, while on the district west of Jackson, Miss., at which time the tonnage hauled west was 750 and eastward 1,140. In 1920 heavier power was installed and the tonnage raised to 1,850 westward and 2,250 eastward, while the number of crews was reduced about 55 per cent.

Monorail Loader for Box Car

THE illustrations show a new development in monorail conveying equipment which makes all parts of a box car accessible. The equipment shown, which is manufactured by the American Monorail Company, Cleveland, Ohio, can be fitted up in any box car in about 15 minutes. Two men can assemble it ready for use and it can be dismantled and removed from the car in less than five minutes. No permanent extra fittings are required in the car and since all parts of the equipment are suspended up near the car roof, they can readily be removed from loaded or empty cars.

To prepare the box car to receive the unloader, a series of steel brackets, with an offset bend toward the



The Car with the Monorail Unit Is Spotted Opposite a Monorail Runway on the Loading Platform

The Trolley is Shown Passing from the Outside Monorail onto the Crane Bridge in the Car.

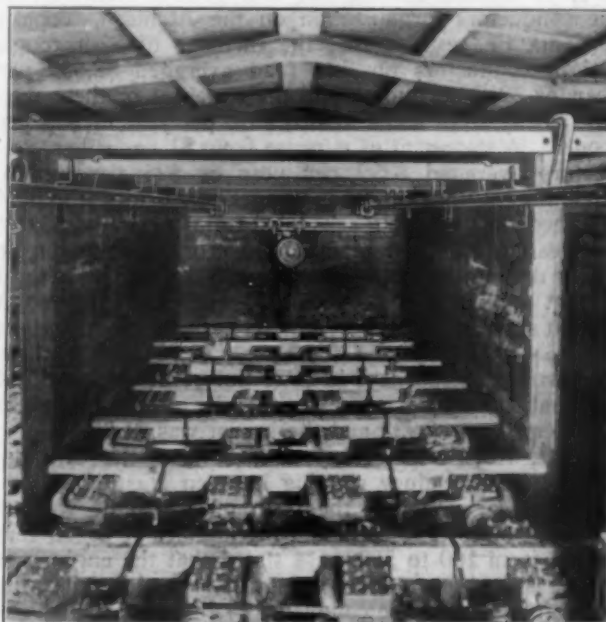
upper end and provided with slotted holes at the lower end, are nailed up along the sides of the interior of the car. Into the upper slots of these brackets are slipped a series of transverse stringers which in turn support the hangers carrying the runway rails for the crane bridge to run on.

The loader itself consists of a short transfer crane assembly operating on two parallel lines of crane runway extending the full length of the car. The crane bridge is carried by especially designed trolleys which carry the bridge high up between the runway rails thus obtaining maximum headroom clearance.

The standard unloader equipment is constructed to be

adjustable for cars from 36 to 40 ft. in length and the stringers supporting the crane runways are adjustable to correspond to different widths. All parts of the unit are of a size to be readily handled and the work of setting up and removing is easily accomplished.

The box car being spotted opposite the projecting end of the loading platform monorail system, the crane bridge is moved to the car door and placed in alignment with it and latched into place, as shown in one illustration. The



American Monorail Loading Unit Being Used to Load a Box Car at the Plant of the Continental Motors Corporation, Muskegon, Mich.

loaded trolley is then run onto the crane bridge, the latch is released and the load moved to the desired point in the car. The releasing of the latch automatically places a safety stop at the free end of the loading platform monorail to prevent the possibility of any following trolley running off the track.

This box car loader has a capacity of 2,000 lb. and is made entirely of steel shapes, steel rails and steel brackets. To dismantle the unloader and make ready for the next car job, the crane is removed and the supporting stringers lifted out of the side brackets. The brackets that are nailed to the side of the car through key-hole sockets are then disengaged and removed, the nails being the only things that are left in the car.



50-Ton Hopper Coal Car Built for the Litchfield & Madison by the Ryan Car Company

Atchison, Topeka & Santa Fe

Had best year in history in 1926—Increase of 18 per cent in freight traffic—Earnings per share of \$23.41

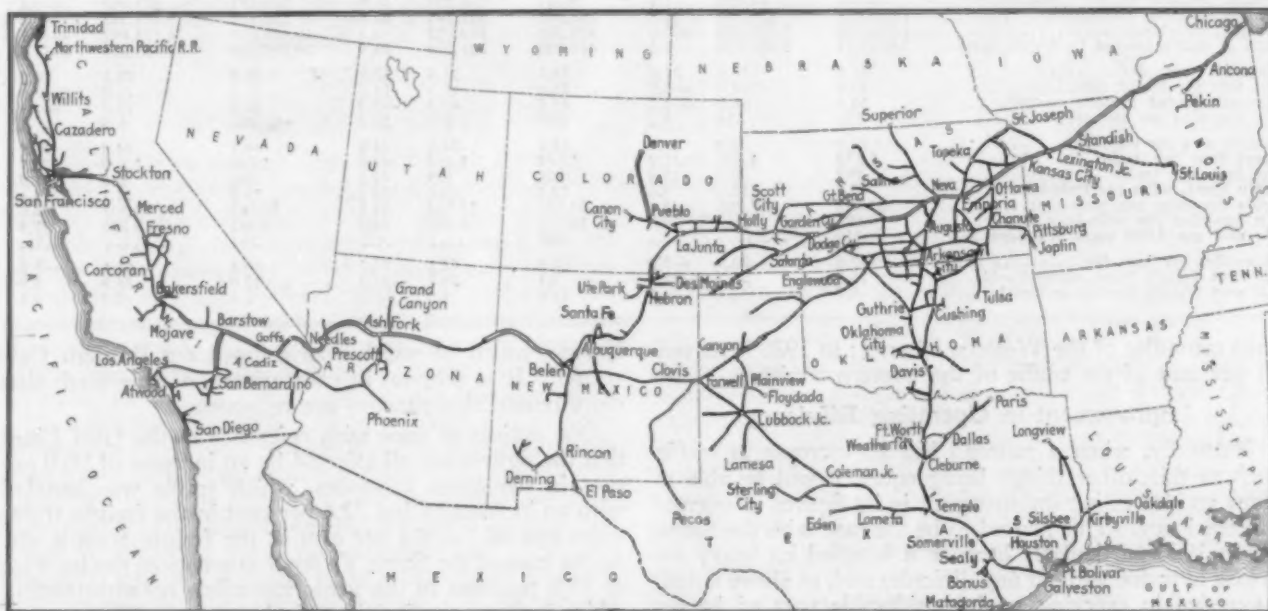
THE annual report of the Atchison, Topeka & Santa Fe for 1926, recently published in part in these columns, was a remarkable record of railroad operating efficiency and earning power. Through an unusual combination of favorable conditions in two important areas served by this extensive system, the railroad was enabled to report the heaviest traffic, the largest gross and the largest net earnings in its history and net corporate income equivalent to \$23.41 a share on its common stock.

A comparison with 1925 shows an increase of 18 per cent in the system's revenue ton-miles. This unusually large increase in traffic the road moved with an increase

results will be duplicated this year. Two excessive wheat crops in succession are rare but not impossible. Oil production will not be so great in the Panhandle this year but it will be very fair."

Record Held to Justify Policies

The Atchison, Topeka & Santa Fe for many years has evidenced a remarkable earning power and an extremely conservative policy with reference to its use of the proceeds from its operations. One of the chief features of this policy, as will be outlined in greater detail, has been its effort at all times to anticipate the demands of traffic that were likely to be made upon its transportation facilities.



The Atchison, Topeka & Santa Fe

of but 5½ per cent in its total transportation expenses and of but 5 per cent in its total operating expenses. The increase in the total operating revenues was 22 million dollars or 9 per cent, while the increase in the operating expenses was but 5 million. As a result of the much smaller increase in the expenses the increase in net corporate income was 14½ million or 31 per cent, which meant that so efficiently was the increased business handled that the road carried no less than 65 per cent of the increase in gross to its net after charges.

In analyzing the results for 1926, one has to keep in mind that the year was an unusual one. This is the point of view taken by President W. B. Storey who was recently quoted as saying: "Our abnormal earnings in 1926 was contingent upon three things: First, the enormous wheat crop in Kansas; second, the huge oil production in the Panhandle field of Texas and the opening up of new wells there, and third, the fact that our road was in a position to handle the excess tonnage offered by wheat and oil." Mr. Storey added with reference to 1927 that, "The question for 1927 lies in whether or not these

ties. In 1926 the road was given opportunity to test the results of its longstanding principles. The situation as a whole is well expressed by President Storey in the annual report itself: "The fact that your company met this maximum demand without embarrassment, with an adequate car supply for all tonnage offered and adequate power and trackage for its movement, is a source of gratification and indicates that the policy of keeping slightly ahead of the normal growth of its territory in the matter of additions, betterments, and improvements in all its facilities is the correct one for your company to follow."

The Santa Fe is such a prosperous property that it has many characteristics of leading interest to the analyst of its operating results. In this article three of these only will be discussed. One is the 1926 results, the second is a comparison of these results with previous years and the third is the large equity which the stockholders have in the property in the form of the earnings that have been plowed back over a long period of years.

With reference to the first point, the 1926 results, the reader should keep in mind that the year apparently was

abnormally good and that the road apparently benefitted in unusual degree from its heavy increase in traffic and its ability to handle this traffic with economy and expedition. The increase in revenue ton-miles in 1926 as compared with 1925 was 18 per cent. The result of this was that the Santa Fe showed a striking increase in its freight revenue over preceding years. Thus in 1926, as compared with the year ended June 30, 1916, it had an increase of 66 per cent in its revenue ton-miles. This increase was more than twice the increase reflected by the Western District as a whole, the Western District figure being 31.7 per cent. In the year ended June 30, 1916, the Santa Fe system moved 8.8 per cent of all the rev-

for the Western District as a whole. The figures that have been quoted thus far are those for the entire Santa Fe system which now totals over 12,000 miles. The operating statistics, however, are reported to the Interstate Commerce Commission separately for the Santa Fe proper, 10,212 miles and for the Gulf, Colorado & Santa Fe 1,906 miles, which operates the lines in Texas. The complete comparison is given in Table I in which the figures for 1926 are compared with those of 1920, the earliest year for which figures of this kind are available. The feature of the table is the phenomenal improvement made by the Gulf Lines which benefited alike from the oil traffic of the Panhandle and from the grain crop of

Table I—Comparison of Selected Freight Operating Statistics

	Atchison, Topeka & Santa Fe			Gulf, Colorado & Santa Fe			Western District		
	1926	1920	Per cent of change Inc. or Dec.	1926	1920	Per cent of change Inc. or Dec.	1926	1920	Per cent of change Inc. or Dec.
Mileage operated	10,212	.....	.....	1,906	.....	.....	132,308	.....	.....
Gross ton-miles (thousands)	39,853,151	31,019,231	28.6	7,652,206	3,903,747	96.0	409,886,617	351,731,765	16.5
Net ton-miles (thousands)	14,681,190	12,781,688	14.8	3,376,897	1,784,350	89.3	169,802,338	163,953,591	3.6
Freight train-miles (thousands)	21,287	21,747	-2.2	4,092	3,082	32.8	248,948	268,762	-7.4
Freight locomotive-miles (thousands)	24,268	24,006	1.1	4,431	3,209	38.1	274,371	293,400	-5.4
Freight car-miles (thousands)	1,050,993	836,289	25.5	196,041	101,795	92.5	10,885,449	9,101,383	19.6
Freight train-hours	1,560,305	1,751,728	-10.9	308,304	284,652	8.4	19,628,393	24,178,892	-18.7
Tons of coal consumed by freight locos. .	2,696,975	2,857,918	-5.6	461,028	369,209	24.9	30,884,626	34,858,919	-11.4
Car-miles per day	37.6	33.6	11.9	34.1	21.6	57.9	32.6	28.1	16.0
Net tons per loaded car	22.0	22.8	-3.5	28.0	25.3	11.6	24.1	26.2	-7.9
Per cent loaded to total car-miles	63.4	66.9	-3.5	61.6	69.4	-7.8	64.6	68.7	-4.1
Net ton-miles per car day	525	514	2.2	587	378	50.3	508	506	.....
Freight cars per train	50.3	39.4	27.6	48.9	34.0	43.9	44.7	34.8	28.5
Gross tons per train	1,872	1,426	31.2	1,870	1,267	47.6	1,646	1,309	25.7
Net tons per train	690	588	17.4	825	579	42.5	682	610	11.8
Train speed, miles per train-hour	13.6	12.4	9.6	13.3	10.8	23.1	12.7	11.1	14.4
Gross ton-miles per train-hour	25,542	17,708	45.4	24,820	13,714	81.1	20,882	14,547	43.6
Net ton-miles per train-hour	9,409	7,297	29.0	10,953	6,269	74.7	8,651	6,781	27.5
Lb. coal per 1,000 gross ton-miles	119	.....	.....	107	.....	.....	133	.....	.....
Loco-miles per loco-day	69.6	70.9	-1.8	83.0	63.1	31.7	60.1	65.1	-7.6
Per cent freight locos. unserviceable	15.5	26.5	-11.0	3.1	28.1	-25.0	17.0	25.9	8.9
Per cent freight cars unserviceable	5.7	7.4	-1.7	13.0	6.0	7.0	6.6	6.5	0.1

enue ton-miles of the Western District; in 1926 it moved 11 per cent of the traffic of the western territory.

Improvement in Operating Efficiency

Naturally, when a railroad has an increase in traffic such as this, other things being equal, it will be able to show an interesting improvement in its figures of operating efficiency. This proved to be the case with the Santa Fe in 1926 particularly because it handled its heavy increase in traffic without any difficulty and, as above noted, succeeded in carrying no inconsiderable part of its increase in gross to its net. The story is briefly told in a comparison of the ratios of operation of the Santa Fe and its two powerful and admittedly well-operated neighbors, the Southern Pacific and the Union Pacific and with the Western District as a whole. The figures given include the ratios of maintenance of way expenses, maintenance of equipment expenses, transportation expenses, total expenses and of net operating income to total operating revenues, and are as follows:

Per Cent of Total Operating Revenues, 1926

	Atchison, Topeka & Santa Fe	Southern Pacific	Union Pacific	Western District
Maintenance of way	13.4	14.2	13.7	14.3
Maintenance of equipment	18.3	17.0	18.5	18.7
Transportation	29.7	34.2	28.6	33.5
Total expenses (operating ratio) ..	65.2	72.2	68.5	71.97
Ratio of net railway operating income to total operating revenues	25.5	18.7	20.5	19.4

Among these several ratios the most important from the standpoint of the ultimate results is the per cent of net operating income to total operating revenues and it will be seen that the Santa Fe carried 25.5 per cent of its gross to net operating income while the roads in the Western District as a whole carried but 19.4 per cent.

The story is amplified if one makes a comparison of the operating statistics of the Santa Fe with the figures

Kansas, much of which was shipped out through Galveston. It is seldom, in comparisons of this kind, that more remarkable changes are reflected.

One notices at once with reference to the Gulf Lines that the figures are all affected by an increase of 96.0 per cent in the gross ton-miles, which traffic was handled with an increase of but 32.8 per cent in the freight train-miles and of but 8.4 per cent in the freight train-hours. In the case of the Santa Fe itself one notices the increase of 28.6 per cent in the gross ton-miles, notwithstanding which increase the freight train-hours were 10.9 per cent less and the fuel consumption was 5.6 per cent less. Most striking of all is the remarkable improvement in the gross ton-miles per train hour. The Santa Fe itself shows an increase of 45.4 per cent and the Gulf Lines an increase of 81.1 per cent, as compared with the Western District's increase of 43.6 per cent.

Best Year in History

The long-time picture of Santa Fe operating results is given in Table II and III, showing the comparisons of important items for the period from 1916 to 1926. In the case of Table II possibly somewhat more attention should be given to the figures for 1925 than for 1926 because of the abnormal character of the 1926 volume of traffic. It will be noticed that while in 1926 the revenue ton-miles were very much in excess of those of 1925, the 1925 figures were nevertheless the greatest in the company's history up to that time. The situation with reference to passenger traffic is not so good. The 1925 figure of revenue passenger miles is the smallest shown in the table up to that year with the exception of 1916, and in 1926 the figure is even less than in 1925 although still in excess of 1916. This is a more or less familiar picture except that the Santa Fe seems to have suffered more from the competition of the automobile and the motor bus

than might have been expected. President Storey in his annual report expressed the view that the decline had probably now come to its end and henceforth increases in the passenger business could be expected.

With reference to the net income, while it is true that in 1926 net after charges was 31 per cent in excess of that of 1925, the 1925 figure was nevertheless the largest in the company's history up to that time and operations were carried on 1925 with sufficient success so that the operating ratio was 69.1. The 1926 figure was 65.2. It is the lowest since 1917 and represents a progressive improvement since 1920.

Surplus Equals Dividends

Table III has many elements of even greater interest than Table II. The 1926 net corporate income of \$60,631,495 compared with \$46,157,934 in 1925. The

basis it was expected in most quarters that the road had in mind financing through the sale of stock. The stockholders have long since authorized a \$100,000,000 increase in stock capitalization but nothing has since been done about it.

In the third column of the table it will be noted that in 1926, the interest on funded debt was only \$11,256,182 or about two-thirds the amount paid in dividends. The table does not tell the complete story for the reason that while the 1926 interest was less than for the years shown in the table, except for 1924 and 1925, it was also less, with the exception of these two years, than for any year since 1906. The amount of capital stock has increased in this period; this has not been due to the sale of stock or stock dividends, however, but to conversion of bonds into stocks. At the present time Santa Fe common stock is selling at about 180. Presuming 10 per cent

Table II—Atchison, Topeka & Santa Fe Operating Results, Selected Items 1916 to 1926

Year	Average mileage operated	Revenue ton miles	Revenue passenger-miles	Rev. per ton-mile cents	Total operating revenues	Total operating expenses	Net operating revenue	Operating ratio	Net railway operating income	Net after interest and other charges
1916	11,259	11,136,119,000	1,362,721,000	0.923	\$144,290,238	\$88,413,487	\$55,876,751	61.3	.....	\$38,122,189
1917	11,284	12,905,999,000	1,553,315,000	0.906	165,529,519	105,222,878	60,306,641	63.6	.....	38,185,547
1918	11,459	12,697,071,000	1,676,144,000	.....	187,658,223	135,793,059	51,865,164	72.4	\$44,206,339	28,348,433
1919	11,500	11,931,108,000	1,965,496,000	1.213	209,500,004	156,026,127	53,473,877	74.5	42,025,618	43,098,658
1920	11,584	12,806,129,000	2,189,233,000	1.316	254,249,002	218,077,115	36,171,887	81.8	37,380,591	37,634,752
1921	11,678	10,375,038,000	1,547,074,000	1.544	228,925,070	173,217,913	\$5,707,154	75.7	41,268,307	39,331,662
1922	11,701	11,177,224,000	1,473,295,000	1.414	225,124,544	166,904,378	58,220,166	74.2	40,003,402	34,382,371
1923	11,782	12,323,632,000	1,614,123,000	1.350	238,683,735	173,076,268	65,607,467	72.6	46,362,272	42,087,801
1924	11,831	13,080,878,000	1,510,070,000	1.285	235,410,952	170,314,808	65,096,144	72.3	47,283,279	42,151,807
1925	11,954	13,861,804,000	1,409,504,000	1.262	236,942,529	163,541,728	73,400,801	69.1	53,666,692	46,157,934
1926	12,121	16,314,038,000	1,387,536,000	1.203	259,040,316	168,759,308	90,281,008	65.2	66,078,881	60,631,495

Standard return for operations during federal control, \$42,885,310.

1926 net was equivalent after the 5 per cent preferred dividends to \$23.41 a share on the common stock and the 1925 net was equivalent to \$17.18 a share on the common. It is more interesting, however, to observe that there are only three years in the table, namely, the first three, in which the common dividends were not smaller than the surplus remaining after dividend payments. In some of the years the amount left after dividends was equivalent to 1½ times the common dividends. In 1926, however, the surplus was twice these dividends. The Santa Fe established a rate of 6 per cent on its common stock in 1907 and maintained that rate except in 1908 until the March of 1925 when the annual rate was increased to 7 per cent. In January of this year the directors declared an extra dividend of ¾ of 1 per cent and early in April they declared an additional extra of the same amount. The general assumption is that the directors expect to make this ¾ of 1 per cent extra dividend a permanent quarterly practice which would have the effect of making the Santa Fe's common dividend henceforth 10 per cent annually. President Storey, however, has been very cautious in discussing this point and has explained that the extra dividends are made possible because of the unusually good results of 1926 which results, as he has stated, may or may not be carried into 1927.

Two Extra Dividends

When the common dividend was paid on a 7 per cent

dividends, this gives to the stockholders who purchases it at that price a yield of slightly over 5½ per cent. The 1926 earnings of \$23.41 a share are equivalent to 13 per cent on the present selling price of the stock.

Large Surplus

The Santa Fe, therefore, has kept itself in a position to handle even unexpected demands upon its plant for transportation service without the issuance of stock or funded debt; in other words without finding it necessary to go into the market for new capital. The situation is explained at once by the large surplus carried to profit and loss each year after dividend payments. It is amplified by the last two columns of Table III showing the additions and betterments and the sums spent for the construction and acquisition of new mileage. It will be found that in this 11-year period a total for the two columns amounts to 303 million dollars, equivalent to \$85 for each share of stock outstanding, which means that the Santa Fe stockholder has an equity very nearly equal to the par value of his stock in the form of additions and betterments over an 11-year period alone. The company expects to spend an additional 40 million this year.

The Santa Fe investment in road and equipment at the end of 1926, totaled 980 million, excluding other investments, and its total capitalization was \$634,763,702 or only two-thirds the investment in road and equipment.

Table III—Atchison, Topeka & Santa Fe Selected Items Indicating Financial Position, 1916 to 1926

Year	Capital stock outstanding at end of year	Funded debt at end of year	Interest funded debt	Net corporate income	Preferred dividends	Common dividends	Earnings per share of common	Common dividends paid, per cent	Surplus carried to profit and loss	Additions and betterments	Construction and acquisition of new mileage
1916	\$314,663,230	\$310,975,282	\$12,364,166	\$38,122,189	\$6,208,685	\$12,482,280	.....	6	\$6,819,991	\$6,566,362	\$1,061,963
1917	340,751,200	297,229,760	11,852,977	38,185,547	6,208,685	16,486,402	14.49	6	7,057,000	12,385,588	4,412,584
1918	344,629,200	287,969,989	11,696,192	28,348,433	6,208,685	13,289,595	9.97	6	8,760,583	21,156,434	5,226,252
1919	345,959,200	286,639,989	11,654,259	43,098,658	6,208,685	13,351,695	16.54	6	23,438,819	21,863,659	3,279,003
1920	347,047,200	285,553,458	12,015,621	37,634,752	6,208,685	13,441,110	13.97	6	17,881,460	16,168,086	1,867,875
1921	348,889,200	291,072,628	11,952,002	39,331,662	6,208,685	13,518,420	14.68	6	19,485,014	25,061,922	859,374
1922	349,571,200	289,888,269	11,871,255	34,382,371	6,208,685	13,605,660	12.39	6	14,455,363	21,754,321	3,681,833
1923	351,226,200	287,722,594	11,323,743	42,087,801	6,208,685	13,909,245	15.42	6	21,925,078	45,731,974	4,729,610
1924	356,592,200	275,958,984	11,247,995	42,151,807	6,208,640	14,525,594	15.46	6½	21,372,359	43,442,718	2,507,841
1925	356,582,300	275,933,158	11,246,918	46,157,934	6,208,640	16,268,665	17.18	7	23,632,593	24,988,041	3,695,134
1926	356,582,300	275,906,992	11,256,182	60,631,495	6,208,640	18,011,736	23.41	7¾	36,335,110	26,937,621	8,173,020

At the same time the company had current liabilities totaling \$33,700,961, whereas its cash alone totaled \$34,051,405 and its total current assets \$74,843,259.

At the end of 1926, the company had a combined corporate surplus and profit and loss balance of \$333,778,065, equivalent to \$94 a share on the stock outstanding at the end of the year.

A question that naturally arises is that of recapture. It is hardly logical to discuss this at great length because of the many uncertainties with reference to recapture caused by the St. Louis & O'Fallon decision, and future action, whatever it may be, with reference thereto, by the United States Supreme Court. However, the road's book value of its investment in road and equipment, added to the cash on hand and the material and supplies, amounts to \$1,040,000,000, 6 per cent of which would be \$62,400,000. The net railway operating income for 1926 was actually \$66,078,881, making one-half the excess over 6 per cent slightly more than \$1,800,000. It would not appear that the Santa Fe even with its earnings of \$23.41 a share on its common stock, has a great deal to fear from recapture.

Criticized for Bridge Failure

FAILURE to exercise "proper engineering and maintenance" is cited by the Bureau of Safety of the Interstate Commerce Commission in its report on the failure of a bridge abutment on the Los Angeles & Salt Lake unit of the Union Pacific, which resulted in a fatal train accident on February 15. The accident in question took place at the bridge over San Jose creek near Clayton, Cal., following a period of heavy rainfall that resulted in a heavy flood damage in southern California. The bridge consisted, from west to east, of a 110-ft. truss span and two 62-ft. girder spans on concrete piers and abutments. It was wrecked under passenger train No. 8, consisting of a baggage car, a diner, three sleepers and an observation car, and evidence showed conclusively that the failure was due to the undermining of the west abutment, which, slipping forward, pushed the truss span eastward, thereby causing the west pier to fail by separation at construction joints.

The section foreman testified that he had visited the bridge earlier on the day of the accident and saw no evidence of scour. Similar testimony was offered by the crew of a westbound extra freight train, which crossed the bridge an hour before the accident, and by a signal maintainer who examined the bridge after the passage of the freight train. The bridge supervisor, the bridge engineer and the chief engineer, who until recently was division engineer of the division embracing this bridge, stated that examination of the bridge during the course of the annual inspection made last fall showed no evidence of scour. It appears, however, that the south or upstream wing of the west abutment had been rebuilt in 1916, during the course of which the foundations were carried deeper into the ground, and that at the same time a curtain wall extending 6 to 7 ft. below the bed of the stream was built in front of the abutment. It also ap-

pears that for some time previous to the accident there was a crack extending vertically for the full height of the north abutment, but that there had been no change in the width of this crack for some time.

The conclusion reached by the Bureau of Safety in its report was that the accident was due to the undermining of the west abutment. Its statement with respect to the possibility of the railway officers having anticipated this condition is as follows:

"Concerning what premonitory signs of failure existed before train No. 8 came upon the bridge can only be a matter of conjecture. Very likely, however, evidence of approaching failure was not lacking in the condition of the west abutment. There were probably cracks in the concrete of pronounced degree, indicative of weakness. There were no reinforcing steel or iron bars in the construction of the abutment. The comparative weakness of concrete in tension is well known. It should lead to great care in the inspection of concrete structures which are not adequately reinforced. The separation of the west pier at joints, however, is not so grave a matter when compression loads only are to be sustained.

"The eroded banks of the river, immediately upstream, should have been a sufficient warning of the probable danger of undermining and have led to the taking of corrective measures. It does not appear from the evidence that proper engineering care and maintenance was exercised in respect to the west abutment which was so obviously exposed to erosive conditions."

Accident Record, 1926

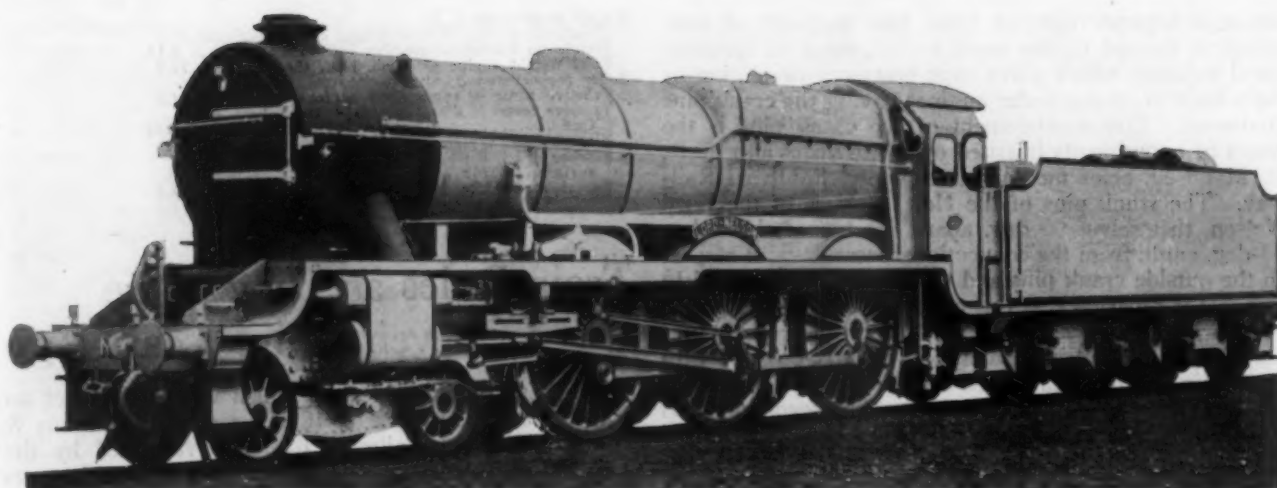
THE Interstate Commerce Commission, Bureau of Statistics, has issued its summary, subject to revision, of accidents to persons reported by steam railways for the 12 months ending with December, 1926. In train accidents 79 passengers, 190 employees and 91 other persons were killed and 1,829 passengers, 1,589 employees and 498 other persons were injured. The number of employees killed (190) is 18 per cent less than in 1925. Comparisons appear in table A.

The total number of employees (on duty) killed, all classes of accidents (1,590) is equal to an average of 35 per one hundred million man-hours; which average for the preceding year was 34 per one hundred million hours. The average of injured (2,441) is about ten per cent less than in the preceding year. The total number of employees killed in train and train service accidents (1,295) averages 72 per one hundred million locomotive miles, which average for the preceding year was 70. The average injured under this head is 1,879 as compared with 1,841 in 1925. Separating trainmen from other employees, the average of trainmen killed (40) is less than in 1925, while the average of injured (7,105) is 40 higher than in 1925.

The total number of persons killed at highway grade crossings (included in the table partly under train accidents and partly train-service accidents), was 2,492, and of injured 6,991: as compared with totals in the preceding year of 2,206 killed and 6,555 injured.

Table A—Totals of Persons Killed and Injured on Steam Railroads, 1926 and 1925

Kind of accident	Passengers				Employees				Other persons				Total			
	1926		1925		1926		1925		1926		1925		1926		1925	
	K	I	K	I	K	I	K	I	K	I	K	I	Killed	Injured	Killed	Injured
In train accidents.....	79	1,829	83	2,053	190	1,589	232	1,483	91	498	103	376	360	3,916	418	3,912
Train service accidents...	73	2,632	88	2,899	1,105	32,337	996	30,760	5,154	10,764	4,862	10,420	6,332	45,733	5,946	44,081
Total of above.....	152	4,461	171	4,952	1,295	33,926	1,228	32,243	5,245	11,262	4,965	10,796	6,692	49,649	6,364	47,993
Non-train accidents.....	3	688	5	691	295	77,315	295	86,390	103	2,583	102	2,361	401	80,586	402	89,442
Grand total.....	155	5,149	176	5,643	1,590	111,241	1,523	118,635	5,348	13,845	5,067	13,157	7,093	130,235	6,766	137,435



Four-cylinder Locomotive "Lord Nelson" Built for Express Service on the Southern (England)

Four-Cylinder Locomotive for Express Service in England

Built by the Southern Railway for high speed runs—79-in. drivers—Tractive force, 33,500 lb.

LONDON, Eng.

THE Southern Railway of England has built a four-cylinder passenger locomotive said to be the most powerful locomotive in the British Isles, at its Eastleigh shops for fast passenger traffic between Waterloo and Salisbury. This locomotive, which has been named the "Lord Nelson," was placed in service in October, 1926, and is the first locomotive of a number to be built of similar design to be known as the "Nelson" class. It was first placed in service on the Atlantic Coast Express which runs between Waterloo station, London, and Salisbury, a distance of 83 miles, in 1 hr. 30 min. On the first trip made on this run the Lord Nelson attained a maximum speed of 83 m.p.h. and also attained speeds of 80 m.p.h., 77½ m.p.h. and 74 m.p.h. for prolonged periods at various times.

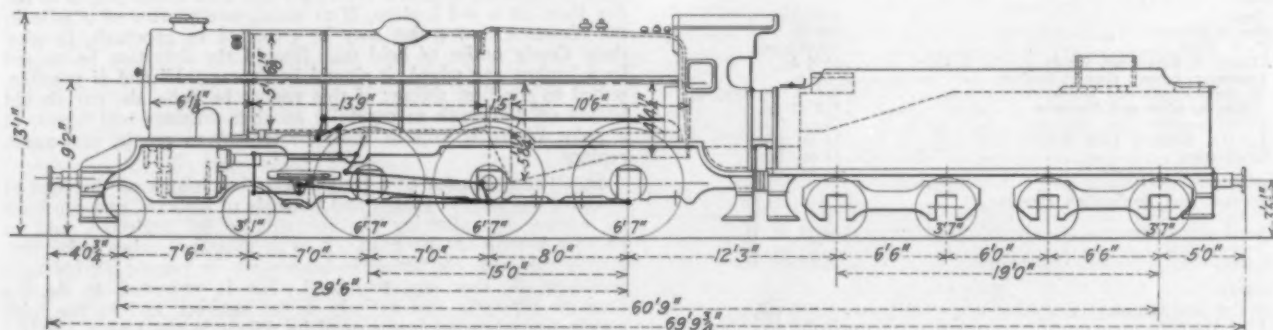
All four cylinders of the Lord Nelson are 16½ in. in diameter by 26-in. stroke. Two of the cylinders are located inside the frames under the smokebox and are direct connected to a double crank axle on the No. 1 pair of drivers. The other two cylinders are located outside in the usual manner with the main rod connected to the

No. 2 pair of drivers, as shown in the drawing. The outside diameter of the drivers is 79 in. The boiler operates at a working pressure of 220 lb. per sq. in. and the locomotive develops a tractive force of 33,500 lb. estimated at 85 per cent of the boiler pressure.

New Arrangement of Inside and Outside Cylinders

The inside cylinders are placed slightly in advance of the outside cylinders and are made in one casting with the piston valve chests located directly above. Steam distribution to the inside cylinders is effected by a separate inside Walschaert valve motion actuated by single eccentrics. Each outside cylinder and valve chest is a separate integral casting, steam distribution to these cylinders being effected by a Walschaert gear of the usual type.

Another interesting feature in the design of the Lord Nelson is that the two pairs of main crank pins are so located with respect to each other as to obtain eight separate impulses per revolution of the driving wheels, 45 deg. apart. The cylinders and valves are designed to



Elevation Drawing of the "Lord Nelson"

obtain a separate exhaust from both ends of all four cylinders instead of the usual arrangement of synchronized exhaust, which gives four beats per revolution of the wheels in four-cylinder engines having the crank pins quartered. This arrangement of the crank pins is the result of experiments initiated over two years ago by R. E. Maunsell, chief mechanical engineer, Southern Railway. The crank pins of the No. 1 drivers of the Lord Nelson, themselves 90 deg. apart, are turned through a 45-deg. angle from the conventional location with respect to the outside crank pins and the wheels are balanced to suit. It is reported that this crank pin arrangement provides a more uniform torque and also creates a more uniform draft through the smokebox than is possible with crank pin arrangements used on the four-cylinder locomotives of conventional design. All revolving and reciprocating parts are made of a special high tensile steel which permitted the use of somewhat lighter balancing weights on the drivers.

The boiler is equipped with a Belpaire firebox, the fire area of which is provided with steel staybolts, the remaining portion of the firebox being equipped with riveted copper staybolts commonly used in European practice. The inside diameter of the first ring is 66½ in. and the length between the tube sheets is 14 ft. 2 in. There are 173 2-in. tubes and 27 5¼-in. flues. The grates have an area of 33 sq. ft. The total evaporative surface of the boiler is 1,989 sq. ft. which, with an additional superheating surface of 376 sq. ft., makes a combined evaporative and superheating surface of 2,365 sq. ft.

The locomotive in working order has a total weight of 186,940 lb., of which 138,768 lb. is carried on the driving wheels and 48,272 lb. is carried on the engine truck. The tender has a water capacity of 6,000 gallons and a fuel capacity of 13,200 lb. and is carried on two four-wheel trucks which have wheels with an outside diameter of 43 in. Both the engine and tender are equipped with a vacuum type brake.

Table of Dimensions, Weights and Proportions

Railroad	Southern (England)
Builder	Southern (England)
Type of locomotive.....	4-6-0
Service	Express
Cylinders, diameter and stroke.....	(4) 16½ in. by 26 in.
Valve gear, type.....	Walschaert
Weights in working order:	
On drivers.....	138,768 lb.
On front truck.....	48,272 lb.
Total engine.....	186,940 lb.
Total tender.....	127,008 lb.
Total engine and tender.....	313,948 lb.
Wheel bases:	
Driving	15 ft.
Total engine.....	29 ft. 6 in.
Total engine and tender.....	60 ft. 9 in.
Wheels, diameter outside tires:	
Driving	79 in.
Front truck.....	37 in.
Boiler:	
Type	Belpaire
Steam pressure.....	220 lb.
Fuel, kind.....	Bituminous
Diameter, first ring, inside.....	66½ in.
Diameter, second ring at firebox.....	69 in.
Firebox, length and width.....	126 in. by 48½ in.
Tubes, number and diameter.....	173—2 in.
Flues, number and diameter.....	27—5¼ in.
Length, between tube sheets.....	14 ft. 2 in.
Grate area	33 sq. ft.
Heating surfaces:	
Firebox and combustion chamber.....	194 sq. ft.
Tubes and flues.....	1,795 sq. ft.
Total evaporative.....	1,989 sq. ft.
Superheating	376 sq. ft.
Comb. evaporative and superheating.....	2,365 sq. ft.
Tender:	
Water capacity.....	6,000 gal.
Fuel capacity.....	13,200 lb.
General data, estimated:	
Rated tractive force, 85 per cent.....	33,500 lb.

Weight proportions:

Weight on drivers ÷ total weight engine, per cent.....	74.3
Weight on drivers ÷ tractive force.....	4.14
Total weight engine ÷ comb. heat. surface.....	78.9
Boiler proportions:	
Tractive force ÷ comb. heat. surface.....	14.2
Tractive force × diam. drivers ÷ comb. heat. surface	1,120
Firebox heat. surface ÷ grate area.....	5.9
Firebox heat. surface, per cent of evap. heating surface	9.8
Superheat. surface, per cent of evap. heat. surface.....	18.9

Train Rules as They Were Seventy-five Years Ago

A CODE of train rules which went into effect on Tuesday, June 1, 1852, on the Lackawanna & Western Railroad, has been reprinted by the Delaware, Lackawanna & Western, and various features of the rules of that day will be found of interest to the present generation, as illustrations of the progress which has been made in this field in 75 years. The Lackawanna & Western was the first link of the present D. L. & W. It extended from the Lackawanna coal basin at Scranton, northward to Great Bend, Pa., 45 miles. Great Bend is now Hallstead.

The general regulations, ten paragraphs, are much like such rules of the present day, the first one "requesting" employees disapproving these or other regulations not to remain in the employ of the company.

Many codes of 1852, and earlier, as published in recent years, have been vague or silent as to the color of night signals, but not so the Lackawanna. The first rule under the head of signals says that "red flags or red lanterns will never be used as signals of caution only, but always of danger."

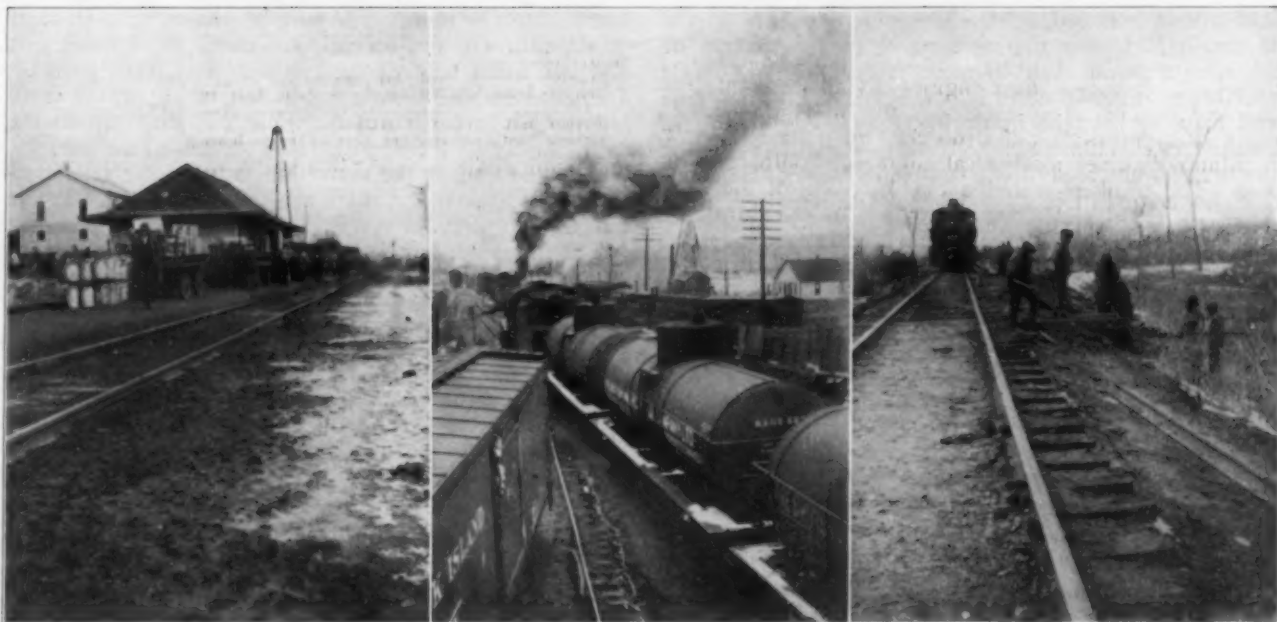
Enginemen must approach a road or switch at moderate speed, and if a switch is not right, the engineman should stop until he is sure. "A very good excuse will be required for running off at a switch left on the wrong track." Following another train, at night, an engineman must keep back at least one mile; and "no excuse as to being deceived about the distance will be received for a neglect of this rule." Approaching a station, an engineman must not shut off steam so suddenly as to cause a concussion of the cars.

In case of a collision, "it will be assumed, until very clearly proved to the contrary, that the conductors and enginemen of both trains have neglected some of the many precautions, whether written or not, which are necessary to safety."

Rule 35, under the head of rules for running of trains, and rule 52, under regulations for the conductor, are as follows:

35.—In case of an accident happening to a coal train, requiring it to stop on the main line of track, the conductor of such coal train is required to send a trusty person, with a red flag, if in the day time, or a red lantern, if at night, one-quarter of a mile in the direction that trains may be expected to approach, to give them timely notice to hold up. Should the detention be caused by a broken car wheel, it should be "spragged," and if possible, pulled to the first siding; if this cannot be done, the car should be put off the track as carefully as circumstances will admit, at a point where it will be most convenient to repair, and again replace.

52.—The conductor of a freight train has leisure on the road to examine the wheels, brakes and journals of his cars, and can have no excuse for allowing the journals to be neglected, and to become heated on the road. It will, therefore, always be presumed that the conductor is inattentive in regard to his subordinates, if they are neglected. He is expected to do his business promptly and entirely at the stations, and to run with regularity, when not interrupted by delays in the trains, mindful that he is running his train to do the business of the road, and not merely to make time over it.



In the Seminole Yard: Left: The Passenger Station; Center: Oil Train Leaving Seminole; Right: The Difficulties of Construction

Handling the Seminole Oil Business

Rock Island makes good showing in the Oklahoma field despite a large number of serious handicaps

ABOUT a year ago, an oil field came in at Seminole, Okla., on the Memphis-Tucumcari main line of the Chicago, Rock Island & Pacific, with a rush that was unusual for even Oklahoma oil fields. Since that time its production has mounted rapidly until it is now well over 300,000 barrels a day, more than one-fourth of the total production of the entire Mid-Continent field. So great is the production that it has caused a near crisis in the oil industry. It has likewise created a condition of unusual magnitude for the Rock Island, the only line serving the area.

For obvious reasons, it was not feasible for the Rock Island to provide at once facilities to cope with the traffic that was suddenly thrust upon it as a result of the development of the field. However, at the end of the rainy season, work was started on extensive improvements which will cost about \$400,000 and include nearly five miles of double track through Seminole, additional passing tracks in the oil field territory and increased yard facilities at Shawnee, El Reno and Holdenville. This work is progressing rapidly. Despite the temporary lack of facilities, the operating officers have gone ahead with what they had available and are slowly but surely bringing order out of the chaos that existed six months ago. This is shown best by the fact that 12,795 loaded cars and 6,634 empty tank cars were handled inbound to the one station in the five months from November to March, inclusive, while 13,099 loaded cars were released. In addition, 6,708 loaded tank cars and 621 loads of other commodities were handled outbound. During the same period, the number of loads held out of Seminole was reduced from about 1,900 cars to about 1,200 cars on March 1 and to 609 cars on April 1, and the latter figure is being further reduced every day when the weather is

at all favorable. This has been accomplished despite the fact that all of the facilities at Seminole have a combined capacity of only 600 cars and the further handicap that every switching movement made in the yards requires the locomotive to come out on the main line.

The Memphis-Tucumcari main line, on which Seminole is situated, is normally a heavy traffic single track railroad. There are a number of north and south railroads serving Oklahoma, but the Memphis-Tucumcari line is the only through east and west line, hence it handles a large short-haul traffic between the junctions with the north and south railroads in addition to the through traffic. The commodities handled in the largest quantities include wheat, cotton, perishables, live stock and manufactured products. This traffic, aside from oil field traffic, has been running heavier than at any time in the history of the Rock Island.

Rapid Development of the Field

Oil experts who attempted to predict the development of the field were ridiculously low in their estimates. They began by predicting a flow of 25,000 barrels a day for the field, which had to be revised almost at once to 50,000 barrels, then to 100,000, then to 150,000, and so on up, until now, with the production well over 325,000 barrels a day and still increasing, they have given up attempting to predict what will happen there.

The adverse effect on the oil market of the flood of oil was such that, about March 1, the oil operators agreed unanimously to shut down on all aggressive activities in the field for 30 days. This step was taken to give the field a chance to settle down from the wild hysteria under which it has been worked since its discovery. A further reason was that the cessation of activities in the

field will, it is hoped, have a steadying influence on the oil market. Under the agreement, the completion of only one well on each 40 acres under lease or single tract of less than 40 acres is permitted. Thus, only one well may be brought in during the 30-day period in which the curtailment is effective, regardless of the number of wells ready to be completed. Seminole county has averaged more than 40 new locations each week



The Only Highway to the South Field

since January 1 and is known among oil men as a "run-away" field.

Prior to the discovery of oil at Seminole there was a field at Wewoka, 12 miles east, where activity had practically ceased. The gushers at Seminole have caused other drilling operations in the vicinity, with the result that there are now flourishing fields at Earlsboro, 9 miles west and at Lima, 6 miles east, while the old field at Wewoka is displaying renewed activity.

There was little advance notice of the flood of traffic

tracks could be built. The field developed on both sides of the railroad, and extends for about three miles east and two miles west of the station. The track parallels a creek for about a mile and a half, along which small but steep hills rise abruptly, while a swamp adjoins the right of way on the opposite side for the entire distance. The grade line of the main line through the oil development is broken and there are seven curves in the five miles.

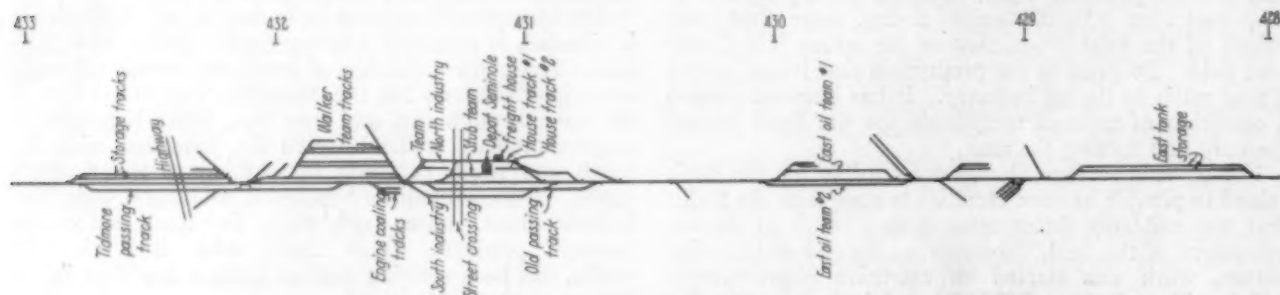
But the worst handicap has been the weather. Seminole is in the red gumbo mud belt and the weather there has been atrocious since the field started. The result has been that almost every day for months, Seminole has been literally a sea of mud. Unloading has been seriously handicapped under these conditions and there have been many days when it was impossible to unload a single car.

New Facilities Built

Despite the physical obstacles interfering with proper track location and construction, space has been found for a number of new tracks within the five miles. At the extreme east end of the yard, two 60-car tank storage tracks have been built. Two miles from the east end two additional tracks have been built, one on each side of the main line with capacities of 22 and 30 cars. In the vicinity of the station and the freight house several other tracks have been laid, including a storage track with a capacity of 20 cars, two house tracks, two team tracks with a total capacity of 24 cars and two industry tracks, with capacities of 14 cars each.

Team Track Operations

A short distance west of the station, in a hollow, the principal team track yard is located with six tracks, all on heavy grades, and with a total capacity of 90 cars. Two short engine-coaling tracks have been built south of the main line at this point. At the west end of the yard, an additional passing track and two storage tracks have been laid with a total capacity of about 295 cars, so that at present Seminole yard has a capacity of 600 cars.



The Yard Layout at Seminole Prior to Extensive Improvements Now Being Made

that was to descend upon the railway from all directions. The importance of the field was underestimated and for that reason no advance preparations were made. The result was that, when the rush began suddenly, the railway was unprepared to meet it. Freight came into Seminole in quantities impossible to handle. The only facility at Seminole was a passing track with a capacity of 65 cars. There was a small yard at Holdenville, 20 miles east, a larger yard at Shawnee, 17 miles west, and a large yard at El Reno, 83 miles west, and business held out of Seminole rapidly backed up into those yards.

Terrain Bad at Seminole

It was important that more facilities be built at Seminole at once but there was little space available on which

The team tracks were built under pressure in the only place where it was possible to locate them and this place was not a particularly good one, since there is a distinct dip in the center of the yard which hampers operations considerably and causes water and mud to accumulate. In good weather, it is possible to unload from 100 to 135 cars a day on these tracks, but in bad weather it is practically impossible to unload any and bad weather has been practically continuous since the field started to develop. A further complication in the use of the team tracks to their fullest extent is the fact that there are no food storage plants in Seminole. This makes it necessary to keep iced refrigerator cars on the team tracks, from which perishables are taken as they are needed. An average of six to seven cars of perishables

per week is required and the constant presence of these cars on the steam tracks does much to hamper operations.

There is only one public road connecting the north and south fields. This is a typical Oklahoma gumbo road that is bad after a shower and impassable after a rain. It crosses the tracks just west of the station and its capacity is further limited by a one-way bridge a few hundred feet south of the crossing. The equivalent of nearly 15,000 carloads of freight have been hauled over this road since the development began.

Methods of Operation at Seminole

Prior to the discovery of oil, Seminole was a small country town of 200 inhabitants, but because of its location, the passing track there was an important meeting point for trains. Under present conditions, through trains are run so as to avoid using this passing track as far as possible, so that it may be turned over for use in the local operations of the Seminole terminal. Normally there are five passenger trains a day in each direction through Seminole, including the Memphis-California Limited, an important through train. About 17 freight trains are operated daily in each direction, making an average total movement of 44 trains through the terminal daily. Five large eight-wheel switching locomotives, with a tractive effort of 41,000 lb., are assigned to Seminole, four of which also operate at night.

All trains are operated through the five-mile yard under control, since every switching movement that is made in Seminole requires the switching engine to use the main line. Thus, the movement of a train through Seminole without delay is a complicated process. This



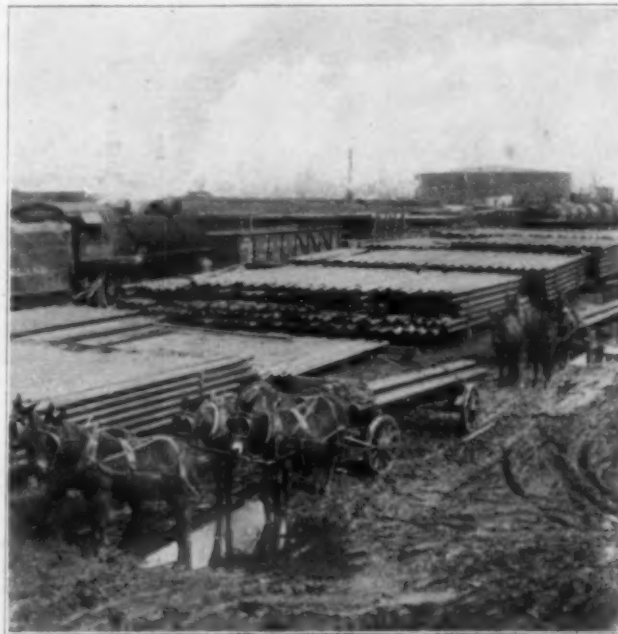
The Team Tracks at Seminole After a Snow

is particularly true when two through trains meet at Seminole, as is sometimes necessary.

The following indicates the process of a typical operation of this character observed at Seminole recently: No. 43, a local passenger train, moved westbound through the yard. A heavy local freight train was scheduled to meet No. 43 at the Seminole passing track. The east end switcher tied up on the tank storage tracks to let No. 43 by. The local freight backed into the passing track, and as No. 43 was loading and unloading passengers at the station, pulled out of the passing track and

proceeded on its way east, permitting the house track switcher and the tramp switcher, with their drags, to get into the passing track and out of the way of No. 43. The west end switcher found a place in the clear on an oil spur and No. 43 got through without delay.

It will be readily apparent to any operating man that operations of this sort afford almost limitless opportunities for loafing on the part of the switching crews. This is particularly true since living conditions in Seminole are bad and it is almost impossible to get competent



Unloading Casing at Seminole

switchmen to work there. Many of the employees who do go there leave after a few days or a week at most and there have been instances of prospective employees going there in bad weather, taking one look at the sea of red mud surrounding the station and leaving on the next train. This is true of all classes of railroad employees at Seminole and it has been a difficult task to build up a satisfactory organization.

Since it requires some time for new switchmen to become acquainted with a complicated situation of this kind, the securing of a fixed force is essential and progress is being made in this direction. As an evidence, during a large and disastrous oil fire recently a crew went onto a loading track at great risk to themselves and pulled out of the danger zone a cut of cars of gasoline which had been so close to the fire that they were smoking, thereby avoiding what might have been a very disastrous explosion.

Another difficult problem has been the need for many more train and engine service employees. This has been met by bringing qualified men from other divisions where business was not so heavy. As far as possible, men with oil-field experience have been selected; a number were secured from the Arkansas-Louisiana division, where they had had experience in the Eldorado field. In addition, it was necessary to hire men from the outside, but this was avoided wherever it was possible to secure suitable men from the Rock Island organization.

Similar difficulty was encountered in getting supervisory officers to endure the living conditions there. The general superintendent has been spending two or three days a week in Seminole for the past six months. An assistant superintendent has been stationed there and

has general charge of operations, with an assistant trainmaster in direct charge of the yard, aided by four assistant yardmasters. The yard office consists of three bill clerks, nine car checkers, one general clerk and two demurrage clerks. The assistant superintendent has remained at Seminole since the rush began, but his subordinate officers have been changing constantly. Late in February, a yardmaster was transferred from El Reno



Living Conditions at Seminole Were Not of the Best

to Seminole and made an assistant trainmaster with charge over yard operations. Two of the four assistant yardmasters are on night duty. Telephones have been installed at strategic positions so that the switching crews may keep in touch with the yard office, and avoid wasted effort and also secure advice about scheduled trains.

When the field gave evidence of developing into a large one, the pipe line already serving Wewoka, 12 miles east of Seminole, was extended to the new field and others were constructed rapidly. For the first few months, the railroad was not called upon to handle any large amount of outbound oil, the movement averaging only from 15 to 20 cars a day. The production has increased at such a pace, however, that all the pipe lines became overtaxed and since March 1, the railroad has been called upon to handle outbound oil that is now averaging 133 cars a day and still increasing. This presented a new complication and added very materially to the difficulty in getting freight into Seminole, for the handling of this oil of course takes a great deal of yard space and restricts the other operations still further.

While Seminole was developing, Earlsboro, Lima and Wewoka were also developing to a smaller extent. Similar construction difficulties existed at these points since the topography is much the same. In addition to building yard tracks at these points, spurs have been built between Earlsboro and Seminole, while a three-mile branch is being built from Lima into the "Bowlegs" field just south of Seminole, which when completed will relieve a great deal of the congestion now existing at Seminole, as all business for the "Bowlegs" field must now

Table No. 1
TRAFFIC HANDLED AT SEMINOLE, OKLA.
TOTAL PER MONTH

Month	Loads released	Loads received	Tanks	Loads oil	Out other	On hand loads
Nov. ...	2,732	2,687	513	615	112	...
Dec. ...	2,482	2,326	489	553	133	...
Jan. ...	2,649	2,756	564	552	128	...
Feb. ...	2,150	3,023	989	912	128	...
Mar. ...	3,082	3,003	4,079	4,076	120	...
5 mos. ...	13,099	12,795	6,634	6,708	621	...

Table No. 2
TRAFFIC HANDLED AT SEMINOLE DURING MONTH

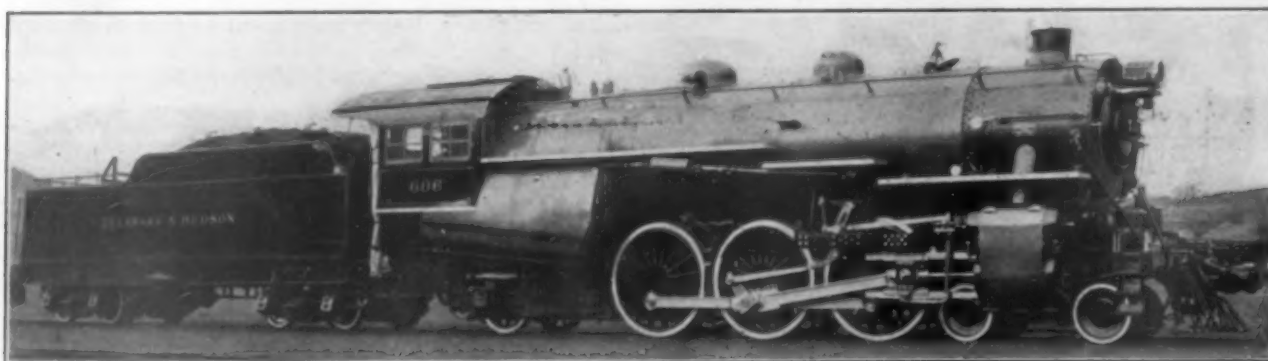
Station	Loads released	Oil loaded	Loads received	Tanks received
Seminole	3,082	4,076	3,003	4,079
Wewoka	984	93	1,019	70
Earlsboro	1,048	.....	847	.....
Lima	412	.....	378	.....
Total	5,526	4,135	5,267	4,149

be placed on the team tracks at Seminole, unloaded and hauled by mule teams to the field.

Oil Brings in Gold

Seminole county now has the largest income per capita of any county in Oklahoma. The income from oil has been at the rate of \$750,000 a day for some time, and if the 140 new wells now being drilled average 1,000 barrels daily, as seems likely, this daily income will be about \$1,000,000. New territory is being proved up in all parts of the county and oil men see no end to the flow. Experts state that it will take 20 years to drill out the field at the present rate of development.

Despite all of the difficulties encountered, this field has had a marked effect on the earnings of the railroad. The increase began about five months ago, shortly after the field opened up and the total revenues from the oil field traffic are now running about \$1,500,000 a month. The importance of the oil traffic is indicated by the fact that it yields 10 per cent of the gross revenues.



Nickle Plated Trimmings on the Delaware & Hudson Locomotive No. 606 Used on the Montreal Limited Makes Quite an Improvement in Its Appearance

The following parts are nickle plated: throttle lever, reverse gear, all boiler fittings, headlight trimmings, headlight shelf, stroke box front hand rail, flag and lamp brackets, boiler checks, bell, washout plug covers, air pump governor, air cooling pipe brackets, injector steam pipe brackets, cylinder port plug coverings, and foot board facing angles. The injector delivery pipes are polished copper, the boiler and cylinder jackets are of special planished iron with brass rivets, and the main and side rods, and motion work are polished.

New Books

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian,
Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Chicago, Milwaukee & St. Paul Railway Company—Analysis. 14 p. map. Pub. by F. J. Lisman & Co., New York City.

Railways of South America, Part I: Argentina, by George S. Brady. *Part II: Bolivia, Colombia, Ecuador, Guianas, Paraguay, Peru, Uruguay, and Venezuela*, by W. Rodney Long. Trade Promotion Series nos. 32 and 39 of the Department of Commerce providing material on the history and present status of South American railways. Each part contains maps of countries and systems. 267 and 420 p. Pub. by Govt. Print. Off., Washington, D. C. 50 cents and 85 cents respectively.

A Thermodynamic Analysis of Internal-Combustion Engine Cycles, by George A. Goodenough and John B. Baker. Univ. of Illinois Bulletin vol. 24, no. 21 and Bulletin no. 160 of the Engineering Experiment Station. 69 p. Pub. by Univ. of Illinois, Urbana. Ill. 40 cents.

Periodical Articles

British Locomotives in 1926, by J. F. Gairns. Illustrated descriptions of types designed and the work they are designed to perform. Bulletin of the International Railway Congress. March, 1927, p. 175-186.

The Fourth Age of Agriculture, by Gareth Garrett. What the application of power to farming can do in the way of cutting costs and modernizing agricultural methods. Saturday Evening Post, April 30, 1927, p. 12-13, 121-122, 127-128.

The Influence of Clearance on the Specific Steam Consumption of Steam Engines and Especially of Locomotives. Translated from an article in the German *Glaser's Annalen*. Mechanical Engineering, May, 1927, p. 455-457.

Literature of Location of Industries, by Witold Krzyzanowski. A review of the works by economists in a number of countries on location of industries with an analysis of the views each presents. Journal of Political Economy, April, 1927, p. 278-291.

A Survey of Road Transport, by C. leM. Gosselin. Factors affecting the extension of highways and highway transport, principally in Great Britain and the United States, with a look toward the future. Journal of the Institute of Transport, April, 1927, p. 268-277, Discussion, p. 277-289.



Carolina-Florida Special, Seaboard Air Line, at West Palm Beach

Looking Backward

Fifty Years Ago

A grand jury in New York has indicted three Wall street stock gamblers for circulating false rumors regarding the Delaware & Hudson in order to depreciate the price of its securities.—*Railway Age*, May 10, 1877.

The Hannibal & St. Joseph has just effected a peaceable reduction in the wages of its enginemen through the principle of arbitration, from \$4.62½ per day to \$4.25 per day. It is hoped that the day when strikes were considered the only remedy for differences of this kind has passed.—*Railway Age*, May 10, 1877.

The Illinois Central, acting through a separate organization, has purchased under foreclosure, the New Orleans, Jackson & Great Northern. By consent of all parties concerned the purchase of the Mississippi Central has been postponed for four months. The acquirement of these two railroads will give the Illinois Central ownership and control of a line from Sioux City on the Missouri river to Chicago on Lake Michigan and to New Orleans on the Mississippi river.—*Chicago Railway Review*, May 5, 1877.

On April 30, an agent for the trustee under the first mortgage seized a part of the track of the Lafayette, Muncie & Bloomington (now part of the Nickel Plate) at Lafayette, Ind., and removed several rails, stopping all traffic. Telegraph lines were cut and rails removed at several other points. The circuit court entered an order enjoining both parties from using the track until a hearing could be had. At latest accounts all traffic was at a standstill.—*Railroad Gazette*, May 4, 1877.

Twenty-Five Years Ago

The sale of the Western Maryland is at last accomplished. It is probably safe to say that the purchase is made in the interest of the Wabash. This means a definite intention on the part of the Gould interests to establish an independent line to the Atlantic seaboard.—*Railroad Gazette*, May 9, 1902.

In accordance with a plan put in operation a year ago the Chicago & Alton has announced its semi-annual distribution of premiums to trainmen, conductors, operators, agents, engineers and firemen, to be awarded for good judgment used in emergencies, for the greatest number of cars moved in freight trains and for economy in the use of fuel.—*Railway Age*, May 9, 1902.

Ten Years Ago

The Atchison, Topeka & Santa Fe has announced that it will pay a bonus of 10 per cent to all employes whose salaries are less than \$5,000 per year and who are not employed under schedules made by collective bargaining. The Great Northern has awarded salary increases, in some cases as high as 25 per cent, to clerical forces and others that have not in the past received such general advances.—*Railway Review*, May 5, 1917.

"It is not in the interests of Canada that the operation of its railways should be in the hands of the government," the Royal Commission appointed by the government to study the general problem of transportation in Canada reported in its findings which have just been made public. The commission rejected receivership as unsound and recommended that the control of the Grand Trunk, the Grand Trunk Pacific and the Canadian Northern be assumed by the people of Canada without government operation. A. H. Smith, president of the New York Central, filed a minority report recommending independent operation under private control and ownership.—*Railway Age Gazette*, May 4, 1917.

Odds and Ends of Railroading

A Locomotive Is No Lady

Should we name our locomotives
With female names like "Maud,"
Just to protect the public
From what seems to be a fraud?
Quite true, they do have aprons
And petticoats to boot,
But that ain't no good reason—
A name like "Maud" don't suit.

Now you bet we know our onions,
We know our groceries, too;
And when we name our engines
No flapper names will do.
We want them strong and "he-man,"
Like Washington or Lee
So when we see "her" smoking
We can call the engine "he."

—M. B. R.

For unusual names, the general roadmaster of the Fort Worth & Denver City must be placed near the head of the list. His first name is Bluford and his last name Violet. To his intimates, he is known as Blue Violet.

Another Angle to the "He or She" Controversy

H. E. Cartwright sends us a Chicago dispatch published in the New York Sun. Here it is:

"Another of the arts has been applied to the steam locomotive. While Easterners are enjoying the aesthetic treat of Baltimore & Ohio engines painted in pastel shades, the Chicago, Burlington & Quincy is preparing to install musical whistles in place of the usual screechers.

"To save the fourteen pounds of coal required for a moderate blast of a whistle, compressed air will be used. The chime whistle will have four tones, not operated like a calliope but combined in dulcet harmony. *It is expected to endow the locomotives with new personality and sex appeal.*" (Italics Mr. Cartwright's.)

The Dumbest Dining Car Waiter

The steps taken to educate dining car cooks and waiters may put a stop to the dining car stories that are told, but there are two of these, dealing with the misadventures of Sam, the dumbest dining car waiter in the world, that will always live. A patron came into Sam's car one morning and, after a hasty glance at the menu said: "Bring me an order of ham and eggs." Later he called Sam back and said: "Hey, waiter, eliminate those eggs."

"What yo' say about dem eggs, boss?"

"I said eliminate them."

Sam wandered into the pantry and finally returned, with a doleful air.

"Boss," he said, "would yo' just as soon have dem eggs fried, our eliminatuh broke dis morning."

On another occasion a patron ordered coffee without cream. After a long interval, Sam returned and said: "Boss, you'll have to have dat coffee without milk, 'cause we ain't got no cream."

What Color Would You Like Your Locomotive?

The artistic urge is being felt by American railroads. One of them, the B. & O., has gone in for "art engines." It is to operate olive green ones with gold and maroon trimmings. Other roads are keenly interested and it is possible that plain black will be entirely out of style as a locomotive color in the near future.

One olive green engine has been put into service already and pronounced by most of the inhabitants along the company lines to be quite pleasing if not positively chic. They now consider black locomotives blah and depressing.

Lavender engines, orange ones, purple ones and even some done in brilliant yellows and reds are a possibility with Scotch plaids not improbable in due time.

"Is the 7:22 Ultramarine for Boston in yet?" you may be inquiring in another year or two.

"That's not running this week, but we've got a perfectly exquisite express leaving at 7:27. The locomotive is done in robin's egg blue," may be the answer. "It'll just about knock your eye out if you like something swagger for traveling."

"Have you arranged everything for the trip South, Edgar?" your wife may some day inquire.

"Everything, my dear. I got the tickets this morning."

"What color is the locomotive to be?"

"Cherry blossom pink with an orange smokestack and cardinal red cowcatcher. Very smart, I'm told."

"Cancel the reservations at once, Edgar."

"But, my dear, I . . ."

"You know very well I never could endure pink in any shades. If I'm going across country I'm going on a trip that suits my complexion."

"Listen, dear, I can't . . ."

"Don't argue with me, Edgar. The Venderhoff-Nashbys left for the South only yesterday behind an old gold locomotive. If they can do it we can."

And then there will be the reckless automobilist who will be found the worse for wear in the ditch beside the tracks.

"What train struck you?" will be the inquiry.

"It was a lavender one with polka dots!"

Even the engineers, firemen, flagmen, conductors and porters may be required to dress more for effect than utility. An engineer in blue jumpers and a greasy cap has never been much to look at anyhow. Let him lean out the cab sporting a Panama hat and camel's hair sports jacket by all means.

On with the louder and gaudier railroad service!

—H. I. PHILLIPS, in the New York Sun.

AMONG THE FOLKS IN HISTORY



Permission of Chicago Tribune

NEWS of the WEEK



P. R. R.—Photo by C. Parker

C. F. McINTOSH has been appointed a member of the Public Service Commission of Indiana, succeeding Frank Wampler, and Harvey Harmon to the same commission to succeed Clyde H. Jones, resigned.

FIRE in the yards of the Pennsylvania at Camden, N. J., on May 2, destroyed 12 passenger cars. This fire, like a similar one at the same place on April 17, is reported as due to some cause not discovered.

THE PENNSYLVANIA has commenced the physical work of electrifying its Octoraro branch, from Philadelphia, Pa., to West Chester (27 miles). Electric train service on this line and on that between Philadelphia and Wilmington, Del., it is expected, will be inaugurated early in 1928.

Annual Convention of the Air Brake Association

The Air Brake Association will hold its thirty-fourth annual convention May 24-27 at the Mayflower Hotel, Washington, D. C. The tentative program as planned includes addresses by Frank McManamy, Interstate Commerce Commissioner; R. H. Aishton, president, American Railway Association, and Daniel Willard, president, Baltimore & Ohio. In addition to these addresses, there will be papers and committee reports as follows: Main Reservoirs; Recommended Practice on Air Brakes and Foundation Brake Gear for Gas Rail Cars; Standardization of Braking Power of Freight Cars; Brake Pipe Leakage; Economical Brake Cylinder Maintenance; Recommended Practice; Freight Train Handling Instructions; Retaining Valves for Freight Cars.—A. R. A. Standard; Exclusion of Dirt and Water from Passenger Car Brake Cylinders, and Air Brakes for Automotive Vehicles.

Multiplex Telegraphy on the Canadian National

The Canadian National has installed "carrier current" on one of its telephone lines between Montreal and Toronto and now transmits, in addition to ordinary telephone communications, telegrams over ten Morse "channels." This intensive use of

wires is to be extended to Winnipeg and later will be introduced on a telephone line between Winnipeg and Vancouver. The company has adopted the carrier current system as generally used on the lines of the American Telephone & Telegraph Company, in which ten telegraph channels can be utilized on one pair of wires.

The carrier wave is an alternating current, which has very small actual power, but a high frequency per second. By the use of oscillators of various sizes, in conjunction with condensers and coils, carrier waves of different frequencies are set up. For ordinary commercial purposes the range of frequencies is between 3,330 and 10,000 cycles per second, though by utilizing higher frequencies up to 30,000 cycles per second, additional telegraph channels, up to 30 channels, could be secured over one pair of physical wires. It is said that the carrier system is not affected by aurora borealis or earth currents. An interesting experiment was conducted when all ten channels were inter-connected and with Toronto sending on channel No. 1, signals were repeated back and forth, Toronto to Montreal ten times and were received with absolutely no distortion. This would be equivalent to a wire circuit 3,340 miles long working through ten repeaters.

Increase in C. N. R. Wages

An increase in wages at the rate of 4 cents per hour to hourly-rated employees and an equivalent increase to monthly-rated employees is recommended in a majority report of the Board of Conciliation named to adjust the dispute between the Canadian National Railways and certain of its employees.

An additional one-half cent per hour to hourly-rated employees, and an equivalent amount to monthly-rated employees, "to be used to equalize the rates of pay of employees in different sections of the same classes in the central Atlantic and western regions," is further recommended.

The majority report was made public by Peter Heenan, Minister of Labor, and employees of the C. N. R. affected are clerks, freight handlers, warehousemen, passenger station employees, stores employees, stationary engineers, stationary firemen,

classified and unclassified laborers in and around shops and roundhouses, as represented by the Canadian Brotherhood of Railway Employees.

A minority report on the question of wages is expected to be available shortly; while a final report in respect to matters concerning working conditions will be made at a later date.

The increase in wages requested by the workers before the board was \$20 per month for all monthly-rated positions, and ten cents per hour for all hourly-rated positions.

The report is signed by William J. Donovan, Winnipeg, chairman of the board, and Howard S. Ross, of Montreal, nominated by the employees. Peter White, Toronto, nominated by the railways, will, it is understood, present a minority report.

Railway Revenues and Expenses for March

The net railway operating income of the Class I railroads in March amounted to \$94,948,235, which for that month was at the annual rate of return of 5 per cent on their property investment, according to reports compiled by the Bureau of Railway Economics. In March, 1926, the net was \$94,657,590, or 5.13 per cent.

Operating revenues for March amounted to \$531,056,379, compared with \$531,464,114 in March, 1926, or a decrease of one-tenth of one per cent. Operating expenses totaled \$395,423,299, or a decrease of four-tenths of one per cent.

Class I railroads in March paid \$31,079,004 in taxes, a decrease of \$115,030 or four-tenths of one per cent under the same month in 1926. This brought the total tax bill for the first three months to \$89,114,767, an increase of \$945,085 or 1.1 per cent above that of the corresponding period in 1926.

Twenty-one Class I railroads operated at a loss in March, of which nine were in the Eastern district, two in the Southern district, and ten in the Western district.

For the first three months the net railway operating income amounted to \$226,601,544, at the annual rate of 4.73 per cent, as compared with \$223,945,445, or 4.80 per cent, in 1926.

Operating revenues for the first three months amounted to \$1,487,318,468, an increase of nine-tenths of one per cent. Operating expenses totaled \$1,144,585,586, an increase of six-tenths of one per cent.

The net railway operating income by districts for the first three months with the percentage of return based on property investment on an annual basis was as follows:

New England Region.....	\$8,926,684	6.23%
Great Lakes Region.....	37,155,428	5.00
Central Eastern Region.....	51,304,885	5.58
Poconos Region.....	19,705,686	8.71
Total Eastern District.....	117,092,683	5.76
Total Southern District.....	35,845,136	4.52
Northwestern Region.....	10,783,336	1.86
Central Western Region.....	40,627,376	4.46
Southwestern Region.....	22,253,013	4.67
Total Western District.....	73,663,725	3.74
United States.....	\$226,601,544	4.73

The rate of return on property investment for the five years ending with the month of March, 1927, has averaged 4.53 per cent.

The Canadian Roads in March

The Canadian National's gross earnings for March this year showed an increase of \$1,128,292, or 5.13 per cent and net earnings showed a gain of \$71,680 or 1.66 per cent over the same month last year. Operating expenses during the period increased by \$1,056,611 or 5.97 per cent and the operating ratio for the month was 81.05 as against 80.40 in March, 1926.

For the first three months of the present calendar year, gross earnings of the Canadian National are shown to be \$62,512,461, an increase of \$3,465,355 or 5.87 per cent over the earnings for the corresponding period of 1926. During the period, operating expenses increased by \$3,087,034 or 5.98 per cent to a total of \$54,668,829, while net earnings for the three months were \$7,843,631, an increase of \$378,321 or 5.07 per cent over those for the first three months of last year. The operating ratio for the first three months of 1927 was 87.45 per cent against 87.36 per cent in the similar period of 1926.

The Canadian Pacific's gross earnings for the first three months of 1927 were the greatest ever shown by the company for a corresponding quarter. Gross for the first three months of this year was \$43,236,009, an increase of \$2,891,051 over the same three months of last year.

Despite the record gross figures net for

the quarter is somewhat lower than last year, which holds the peace time record of \$6,531,067. For the first quarter of this year net was \$6,462,628, which represents a decline of only \$68,438 from the 1926 figure.

Another feature of the statement of earnings and expenses issued by the C. P. R. was a substantial increase in both gross and net earnings for the month of March. Gross earnings for the month at \$15,433,137 were the highest in years, representing an increase of \$1,171,318 over March, 1926, while net was at the highest level since 1918, being shown at \$2,984,194.

Gross earnings, working expenses and net profits for the month of March and for the first quarter of the year are shown, with comparisons, in the following tables:

March	1927	1926	Inc.
	\$	\$	\$
Gross	15,433,137	14,261,818	1,171,318
Oper. Exp.	12,448,942	11,437,641	1,011,301
Net	2,984,194	2,824,177	160,017
First quarter.			
Gross	43,236,009	40,344,958	2,891,051
Oper. Exp.	36,773,381	33,813,891	2,959,489
Net prof.	\$6,462,628	6,531,067	x68,438

xDecrease.

Wage Statistics for February

The summary of reports of employees, service, and compensation filed by Class I railways with the Interstate Commerce Commission for the month of February, 1927, shows a decrease in the number of employees of 3,723, or 0.2 per cent, as compared with the returns for the preceding month. The total as of the middle of the month was 1,720,520. The total compensation, \$228,171,570, shows a decrease of 6.7 per cent, which resulted principally from the fact that February had 23 working days, while January had 25. Compared with the returns for February, 1926, the number of employees shows a decrease of 0.7 per cent, and the total compensation an increase of 0.02 per cent.

The Commission has included with its February summary the following statement of the average number of employees of selected classes, reported by Class I Railways for the calendar years 1924, 1925 and 1926:

Occupational class	Number of employees			Per cent increase	
	1924	1925	1926	over 1924	over 1924
Clerks	186,503	185,210	185,914	(d) 0.69	(d) 0.32
Bridge and building skilled laborers	28,646	28,861	30,250	0.75	0.56
Track and roadway laborers	259,373	259,821	280,906	0.17	8.30
Machinists	62,800	61,265	68,874	(d) 0.24	(d) 3.07
Boilermakers	20,376	19,802	19,329	(d) 2.82	(d) 5.14
Blacksmiths	9,418	9,229	9,042	(d) 2.01	(d) 3.99
Carmen	119,130	116,256	113,123	(d) 2.41	(d) 5.04
Electrical workers	9,491	9,800	10,273	3.26	8.24
Sheet-metal workers	11,780	11,628	11,636	(d) 1.29	(d) 1.22
Station agents	31,351	30,999	30,681	(d) 1.12	(d) 2.14
Truckers (stations, warehouses and platforms)	38,505	39,231	39,256	1.89	1.95
Common laborers (stations, warehouses and platforms)	4,214	4,259	4,203	1.07	(d) 0.26
Road freight conductors (through)	15,610	15,620	16,196	0.06	3.75
Road freight conductors (local)	9,254	9,299	9,537	0.49	3.06
Road freight brakemen (through)	36,574	36,205	37,494	(d) 1.01	2.52
Road freight brakemen (local)	21,965	21,776	24,082	(d) 0.79	0.49
Road freight engineers (through)	21,779	21,263	21,903	(d) 2.37	0.59
Road freight engineers (local)	9,236	9,390	9,660	1.67	4.59
Road freight firemen (through)	23,862	23,102	23,714	(d) 3.18	(d) 0.62
Road freight firemen (local)	9,484	9,612	9,830	1.35	3.65
All classes	1,777,391	1,769,099	1,805,780	(d) .47	1.60

(d) Decrease.

O'Fallon Case Taken Into Court

A petition was filed in the United States District Court at St. Louis on May 3 for an injunction restraining the Interstate Commerce Commission from enforcing its recapture orders in the now famous valuation case of the St. Louis & O'Fallon and the Manufacturers' railways. The petition was filed in the name of William Cotter, president of these railways.

The filing of the petition starts litigation involving the principles and methods used by the Interstate Commerce Commission in making valuations of the railways which, it is believed, will reach the Supreme Court of the United States in such form that it will result in a decision by the court determining the most important issues involved in the entire question of valuation.

The decision of the commission in the O'Fallon case is attacked upon several important grounds. One of these is that the commission, in making its valuation of these railways as the basis for the recapture of excess earnings, did not give "substantial and effective weight to the cost of reproduction during said (recapture) periods," or "substantial and effective weight to the great increase in the cost of labor, materials and equipment over and above the 1914 prices except to the extent that such increases were reflected in the costs of additions and betterments added to the property since June 30, 1914," or "substantial and effective weight to the diminishing purchasing power of the dollar throughout the recapture periods as compared with June 30, 1914," and that in consequence the commission "did not find or attempt to find the present actual value of the said property of the O'Fallon as of the recapture periods in accordance with the law of the land, as required by the Interstate Commerce Commission act and by the constitution of the United States, but based its so-called finding of value on a purely arbitrary formula and based the same on erroneous principles of law, by reason whereof the order of the commission is void."

Another important ground upon which the commission's order for the recapture of earnings from the O'Fallon is attacked is that under section 15-A of the Interstate Commerce Commission's act "no payments or accumulations of excess net railway operating income are required on the part of any carrier subject to said act unless and until the commission shall so have adjusted the rates, fares and charges of carriers subject to said act, that the carriers as a whole (or as a whole in each of the rate groups or territories designated by the commission) will under honest, efficient and economical management and reasonable expenditures for the maintenance of structures and equipment, earn an aggregate annual railway net operating income equal to a fair return upon the aggregate value of the railway property of such carriers held for and used in the service of transportation." It is pointed out that during neither of the recapture periods have the railways of the group to which the O'Fallon belongs earned a fair return upon the aggregate value of their property; that the net operating income earned by the O'Fallon would have been

substantially greater if the rates for the group as a whole had been so adjusted as to enable them to earn a fair return; and it is claimed that this having not been done, no net operating income is recapturable.

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings.

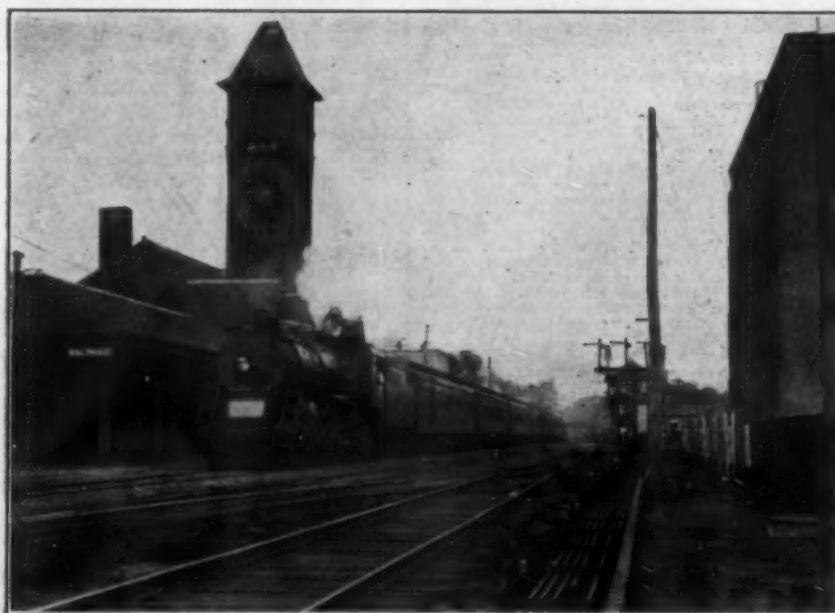
- AIR BRAKE ASSOCIATION.**—T. L. Burton, 165 Broadway, New York City. Next meeting, May 24-27, 1927, Mayflower Hotel, Washington, D. C. Exhibit by Air Brake Appliance Association.
- AIR BRAKE APPLIANCE ASSOCIATION.**—J. H. Ainsworth, A. M. Byers Co., 410 Union Bank Bldg., Pittsburgh, Pa. Meets with Air Brake Association.
- AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.**—J. D. Gowin, 112 W. Adams St., Chicago.
- AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.**—E. L. Duncan, 332 S. Michigan Ave., Chicago. Next meeting, June 21-23, 1927, Mackinac Island, Mich.
- AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.**—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Next annual meeting, November, 1927, Havana, Cuba.
- AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.**—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Annual convention, June 21-24, 1927, San Francisco.
- AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.**—C. E. Bell, Seaboard Air Line, Washington, D. C. Next meeting, October, 1927, Chicago.
- AMERICAN ELECTRIC RAILWAY ASSOCIATION.**—J. W. Welsh, 292 Madison Ave., New York. Annual convention, Oct. 3-7, 1927, Cleveland Public Auditorium, Cleveland, Ohio.
- AMERICAN RAILROAD MASTER TINKERS', COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.**—C. Borchardt, 202 North Hamlin Ave., Chicago, Ill.
- AMERICAN RAILWAY ASSOCIATION.**—H. J. Forster, 30 Vesey St., New York, N. Y.
Division I.—Operating.—J. C. Caviston, 30 Vesey St., New York.
Freight Station Section (including former activities of American Association of Freight Agents).—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill. Annual convention, May 17-20, 1927, Hotel Peabody, Memphis, Tenn.
Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., N. Y. Next meeting, May 16-17, Hotel Jefferson, Richmond, Va.
Protective Section (including former activities of the American Railway Chief Special Agents and Chiefs of Police Association).—J. C. Caviston, 30 Vesey St., New York. Next meeting, June 21-23, Hotel St. Francis, San Francisco, Calif.
Safety Section.—J. C. Caviston, 30 Vesey St., New York.
Telegraph and Telephone Section including former activities of the Association of Railroad Telegraph Superintendents.—W. A. Fairbanks, 30 Vesey St., New York. Next meeting, Oct. 4-6, The Willard, Washington, D. C.
Division II.—Transportation (including former activities of the Association of Transportation and Car Accounting Officers).—G. W. Covert, 431 South Dearborn St., Chicago.
Division III.—Traffic. J. Gottschalk, 143 Liberty St., New York.
Division IV.—Engineering, E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Exhibit by National Railway Appliances Association.
Construction and Maintenance Section.—E. H. Fritch.
Electrical Section.—E. H. Fritch.
Signal Section (including former activities of the Railway Signal Association).—H. S. Balliet, 30 Vesey St., New York. Next meeting, Sept. 13-15, 1927, Mount Royal Hotel, Montreal, Que.
Division V.—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Annual Meeting, June 7-10, 1927,

Hotel Windsor, Montreal, Que. No exhibits at this meeting.

- Equipment Painting Section (including former activities of the Master Car and Locomotive Painters' Association).**—V. R. Hawthorne, 431 South Dearborn St., Chicago. Annual convention, Sept. 13-15, 1927, Hotel Kentucky, Louisville, Ky.
- Division VI.—Purchases and Stores (including former activities of the Railway Storekeepers' Association).**—W. J. Farrell, 30 Vesey St., New York, N. Y. Next meeting, May 24-26, 1927, Palmer House, Chicago. No exhibits at this meeting.
- Division VII.—Freight Claims (including former activities of the Freight Claim Association).**—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill. Annual meeting, June 14-17, Quebec, Canada.
- Car Service Division.**—C. A. Buch, 17th and H Sts. N. W., Washington, D. C.
- AMERICAN RAILROAD BRIDGE AND BUILDING ASSOCIATION.**—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Exhibit by Bridge and Building Supply Men's Association. Annual convention, October 18-20, 1927, Hotel Nicollet, Minneapolis, Minn.
- AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.**—H. W. Byerly, General Immigration Agent, Northern Pacific, St. Paul, Minn. Annual meeting, June 8-10, 1927, Hotel Statler, Detroit, Mich.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.**—(Works in co-operation with the American Railroad Association Division IV.) E. H. Fritch, 431 South Dearborn St., Chicago. Exhibit by National Railway Appliances Association.
- AMERICAN RAILWAY MAGAZINE EDITORS ASSOCIATION.**—Margaret T. Stevens, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, June 2 and 3, Hotel Roosevelt, New York.
- AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.**—G. G. Macina, C. M. & St. P. Ry., 11402 Calumet Ave., Chicago. Annual convention, Aug. 31, Sept. 1 and 2, 1927, Hotel Sherman, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.
- AMERICAN SHORT LINE RAILROAD ASSOCIATION.**—T. F. Whittelsey, 1319-21 F St., N. W., Washington D. C.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS.**—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Marion B. Richardson, Associate Mechanical Editor, *Railway Age*, 30 Church St., New York. Spring meeting, May 23-26, 1927, White Sulphur Springs, W. Va.
- AMERICAN WOOD PRESERVERS' ASSOCIATION.**—E. J. Stocking, 111 West Washington St., Chicago. Next annual convention, Jan. 24-26, 1928, Montreal, Que.
- ASSOCIATION OF RAILWAY CLAIM AGENTS.**—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn.
- ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.**—Jos. A. Andreucetti, C. & N., Room

413, C. & N. W. Station, Chicago. Annual meeting, Oct. 25-28, 1927, Hotel Sherman, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

- ASSOCIATION OF RAILWAY EXECUTIVES.**—Stanley J. Strong, 17th and H. Sts., N. W., Washington, D. C.
- BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.**—D. A. Hultgren, secretary, Massey Concrete Products Co., 1328 McCormick Bldg., Chicago. Annual exhibit at convention of American Railway Bridge and Building Association.
- CANADIAN RAILWAY CLUB.**—C. R. Crook, 129 Chertton St., Montreal, Que.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.
- CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.**—J. W. Krause, 514 East Eighth St., Los Angeles, Calif. Regular meetings, second Friday of each month, 514 East Eighth St., Los Angeles.
- CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.**—R. E. Giger, 721 North 23rd St., East St. Louis, Ill. Meetings, first Tuesday in month at the American Hotel Annex, St. Louis.
- CENTRAL RAILWAY CLUB.**—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2nd Thursday each month, except June, July, August, Hotel Statler, Buffalo, N. Y.
- CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.**—(See Railway Car Department Officers' Association.)
- CINCINNATI RAILWAY CLUB.**—D. R. Boyd, 811 Union Central Bldg., Cincinnati, Ohio. Meetings, 2nd Tuesday in February, May, September and November.
- CLEVELAND RAILWAY CLUB.**—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings, first Monday each month, except July, August, September, Hotel Hollenden, Cleveland.
- INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.**—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Next convention, August 16-18, 1927, Hotel Lafayette, Buffalo, N. Y. Exhibit by International Railroad Master Blacksmiths' Supply Men's Association.
- INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.**—W. R. Walsh, Ewald Iron Co., Louisville, Ky.
- INTERNATIONAL RAILWAY FUEL ASSOCIATION.**—L. G. Plant, 80 E. Jackson Blvd., Chicago. Annual convention, May 10-13, 1927, Hotel Sherman, Chicago. Exhibit by International Railway Supply Men's Association.
- INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.**—Wm. Hall, 1061 W. Wabash Ave., Winona, Minn. Annual convention, September 6-9, 1927, Chicago.
- INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.**—W. J. Dickinson, 189 W. Madison St., Chicago. Meets with International Railway Fuel Association.



Boston & Maine "Minute Man," with Name Board on Locomotive, Passing Waltham, Mass.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 26 Cortlandt St., New York.

NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.—E. A. Morse, vice-president, Potosi Tie & Lumber Co., St. Louis, Mo. Next annual convention, April 24-26, 1928, Arlington Hotel, Hot Springs, Ark.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 49 Lafayette St., New York. Annual meeting, October 17, 1927, Dallas, Tex.

NATIONAL RAILWAY APPLIANCE ASSOCIATION.—C. W. Kelly, 1014 South Michigan Ave., Chicago.

NATIONAL SAFETY COUNCIL.—Steam Railroad Section: J. E. Long, Superintendent Safety, D. & H., Albany, N. Y.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2nd Tuesday in month, excepting June, July, August and September, Copley Plaza Hotel, Boston, Mass.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 3rd Friday in month, except June, July and August.

PACIFIC RAILROAD CLUB.—W. S. Wolfner, 64 Pine St., San Francisco, Cal. Regular meetings, 2nd Thursday in month, alternately in San Francisco and Oakland.

RAILROAD MOTOR TRANSPORT CONFERENCE.—R. H. Newcomb, 492 South Station, Boston, Mass.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, 1116 Woodward Building, Washington, D. C. Annual meeting, June 7-10, 1927, Cosmopolitan Hotel, Denver, Colo.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noron, 1406 Packard Bldg., Philadelphia, Pa.

RAILWAY CAR DEPARTMENT OFFICERS' ASSOCIATION.—A. S. Sternberg, Belt Ry. of Chicago, Polk and Dearborn Sts., Chicago. Annual convention, August 23-25, 1927, Hotel Sherman, Chicago. Supply Men's Association.—B. S. Johnson, W. H. Miner, Inc., 209 S. La Salle St., Chicago.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—Edward Wray, 9 S. Clinton St., Chicago. Meets with Association of Railway Electrical Engineers, Oct. 25-28, Hotel Sherman, Chicago.

RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—F. W. Venton, Trade Co., 836 S. Michigan Ave., Chicago. Meets with Traveling Engineers' Association, September, 1927.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. E. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, October 11-13, 1927.

RAILWAY REAL ESTATE ASSOCIATION.—C. C. Marlor, 1243 Transportation Bldg., Chicago.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division and Purchases and Stores Division, A. R. A. No exhibits in 1927.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.

RAILWAY TREASURY OFFICERS' ASSOCIATION.—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa. Annual meeting, Sept. 1-3, 1927, Detroit, Mich.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahoe, Gen. Supt. Road, Baltimore & Ohio, Pittsburgh, Pa. Annual convention, September 20-22, 1927, Buffalo, N. Y. Exhibit by Track Supply Association.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2nd Friday in month, except June, July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, West Nyack (Rockland Co.), N. Y. Meets with A. R. A., Signal Section.

SOUTHEASTERN CARMEN'S INTERCHANGE ASSOCIATION.—Clyde Kimball, Inman Shops, Atlanta, Ga. Meets semi-annually.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & A. Ry., Atlanta, Ga.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo-Ajax Corporation, Hillburn, N. Y. Meets with Roadmasters' and Maintenance of Way Association, September, 1927.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, Gen. Supt. R. S., New York Central, Buffalo, N. Y. Annual meeting, September, 1927, Hotel Sherman, Chicago. Exhibit by Railway Equipment Manufacturers' Association.

WESTERN RAILWAY CLUB.—Bruce V. Crandall, 189 West Madison St., Chicago. Regular meetings, 3rd Monday each month, except June, July and August.

Traffic

The Interstate Commerce Commission has found justified, with certain exceptions, a revision proposed by the railroads of rates on pig iron, between points in Central territory, including both increases and reductions.

The Interstate Commerce Commission has assigned its general rate structure investigation, part 6, iron and steel articles, for hearing at Atlantic City on June 15, before Commissioner Campbell and Examiner Faul and Bardwell.

The Crescent Limited of the Southern Railway has just completed its second year of operation and the company reports that between Washington and Atlanta, 227 miles, the train has completed its trips on time 99.4 per cent of the trips, arriving at Atlanta on time 363 days and at Washington 346 days.

The Pennsylvania has applied to the Public Service Commission of Pennsylvania for authority to discontinue its agencies, both freight and passenger, at 16 places on the Renovo division, where the business has fallen off to such an extent that the expense of maintaining regular station facilities is not justified.

The Chicago & Alton and the Union Pacific have recently placed single-room overnight sleeping cars in service on their lines. The Chicago & Alton is using this type of car in the Midnight Special between Chicago and St. Louis, while the Union Pacific has installed it as regular service between Denver, Colo., and Omaha, Neb.

The Associated Traffic Clubs of America, at the annual meeting at Memphis, Tenn., on April 26 and 27, elected the following officers: President, T. C. Burwell, vice-president of the A. E. Staley Manufacturing Company, Decatur, Ill.; vice-presidents, the first three of which were re-elected, William C. Fitch, (Southern Pacific) San Francisco, Cal., T. B. Curtis, (C. & W. C.) Atlanta, Ga., P. R. Flanagan, (C. G. W.) and H. W. Roe, Tulsa, Okla.

Jersey Central Bus Service Starts May 22

The Central of New Jersey will on May 22 begin motor bus service over the entire route between Lakewood, N. J., and Barnegat, about 25 miles. There will be three round trips daily between Lakewood and Barnegat in addition to three round trips between Lakewood and Beachwood, (15 miles), which is one mile below Toms River. The motor coaches will stop at regular designated points and will also serve several small towns not heretofore reached by train service between Lakewood and Toms River. The motor coaches (two of which have been ordered from the American Car & Foundry Motors Company) will supplant three local train round

trips between Lakewood and Beachwood, but the company will continue to run a through train between Barnegat and New York in the morning and return from New York at night.

C. & E. I. Poultry Train in Indiana

The Chicago & Eastern Illinois is to run a Better Poultry train over its line in Indiana, starting May 23, co-operating with Purdue University, the Poultry Research Society of America, the Central Inspection and Weighing Bureau, the Buckeye Incubator Company and Armour & Company. One car will show a number of pens of the popular varieties of poultry and will also have exhibits on feeding baby chicks and laying hens and the results of proper breeding. Another car will contain exhibits of poultry diseases and sanitation. The third car will show demonstrations on candling, grading, packing and loading of eggs. A live poultry transit car, showing how poultry is shipped to market, and a flat car, on which is built a standard brooder and laying house, will also be part of the equipment. A children's play car will be carried for the convenience of mothers.

An egg show will be held in each town and premiums will be awarded for the best dozen of either white or brown eggs. The special will remain in each town three hours, during which time talks on poultry will be given. A poultry disease clinic will also be held to diagnose ailments of sick chickens.

Eighteen towns will be visited by the train which has just finished a trip in Illinois where it was visited by 30,000 people.

Northwest Advisory Board Reports Favorable Outlook

Excellent crop prospects, sound and improving business conditions, adequate transportation facilities and a striking spirit of optimism among farmers and business men alike prevail throughout the inland northwest, according to committee reports presented to the Northwest Shippers' Advisory Board at its annual spring meeting at Huron, S. D., on April 26. The meeting was attended by nearly 300 freight shippers, bankers, railway officers and representatives of agricultural and livestock organizations. Present indications point to one of the largest grain crops in recent years and the state of railroad equipment and service indicate that the 1927 crop movement will be handled with smoothness and dispatch.

The shipping board's work of promoting co-operation between railroads and the men who use their services is finding increasing favor among farmers and business men. There will be an increased acreage of durum wheat, corn, potatoes and sugar beets in Minnesota, North Dakota and South Dakota, according to the

reports of the farmers. Shipments of agricultural implements show a substantial increase over those of a year ago.

General business, industrial and construction activity is nearly equal to that of last spring and indicates an improvement during coming months.

The next meeting of the board will be held at Valley City, N. D., on July 26.

Ask Modification of Decision in Southern Freight-Rate Case

A joint petition has been filed with the Interstate Commerce Commission by the railroads in Southern, Central Freight, Illinois Freight, Trunk Line and New England territories, for a modification of the commission's findings in its Southern Class Rate Investigation covering the inter-territorial freight rate adjustment. In this case the commission prescribed a general readjustment of the rates in the Southeast and between the Southeast and other territories, on a system of distance scale rates. In suggesting modification of the inter-territorial class rates, the petition said, "the carriers are not submitting what they regard or would advocate as maximum reasonable rates but have endeavored to keep their suggestions within the bounds of the evident purposes of the commission and conformable to the methods and general bases prescribed. They have suggested only such changes as were thought to be necessary or desirable to bring about a better related adjustment with fewer fourth section departures than would result were the requirements in the report literally followed. The carriers are in accord with the hope expressed by the commission that this investigation will result in a rate structure which will have reasonable stability, and believe the modifications suggested will tend in that direction."

The Seaboard Air Line, the Atlantic Coast Line and the Florida East Coast also have filed a petition for a modification of the findings concerning the inter-territorial class rates between points in Central territory and points in the peninsula of Florida, for the purpose of placing before the commission a full and complete statement of the situation with which these carriers are confronted by reason of the reductions in the inter-territorial rates under the commission's findings—which reductions, they say, are superimposed upon reductions in respect to the intraterritorial rates—and to ask that these carriers may be accorded some relief from the burdensome effect of these combined reductions.

The commission on May 3 issued a notice to all concerned that representatives of carriers, shippers or other parties to the proceedings who desire to comment on these petitions prior to action by the commission may file statements in writing not later than June 1.

Rates on Iron and Steel Investigated

A hearing before Commissioner Campbell and Examiners Hall and Bardwell of the Interstate Commerce Commission to investigate freight rates on iron and steel articles, Docket 17,000, Part 6, was held

at Detroit, Mich., on April 25, at which witnesses endeavored to show that Detroit is under a competitive disadvantage because of discriminatory freight rates on iron and steel products. L. G. Macomber, traffic commissioner of the Detroit Board of Commerce, said that concerns in Chicago, Cleveland and Pittsburgh enjoyed a preferential rate, which represented a difference of 3 to 6 cents per 100 lb.

Other witnesses included P. L. Carter of the Jackson Fence Company, Jackson, Mich., F. R. Sinduce of the Union Steel Products Company, Albion, Mich., W. K. Donner, president, and J. P. Daley, traffic manager, of the Donner Steel Company, Buffalo, N. Y. J. J. Lynch of the Hayes Wheel Company, Jackson, Mich., J. L. Ludlow of the Port Huron Chamber of Commerce, W. J. Montgomery of the Pontiac Chamber of Commerce, Ben Price of the Jackson Chamber of Commerce, and J. D. McDonald, Saginaw, Mich.

John L. Lovett, secretary and general manager of the Michigan Manufacturers' Association, Detroit, John C. Graham, representing the Jackson and Albion chambers of commerce, and C. B. Taft, traffic commissioner for the Lansing Chamber of Commerce, testified that with the recent growth of manufacture in Michigan the zone system of rate making has been outworn. This state is divided for rate-making purposes into three east and west zones, known as A, B and C, in compliance with an order of the commission issued in 1916 to remedy complaints that the carriers in Michigan were isolated from other lines. The witnesses argued that there was no reason why there should be such a rate difference between zones A and B in Michigan and those portions of Indiana and Ohio directly across the state line. E. E. Williamson, representing the Andrews Steel Company, the Newport Rolling Mill Company and the Globe Iron Roofing & Corrugation Company, Newport, Kan., opposed the present system of rate making and introduced his own scale.

Canadian Rates Hearings End

For the first time in a considerable period the right of a member of the Dominion Railway Board to give a decision on a case heard by the Board was challenged late last week by Sydney B. Woods, counsel for the province of Alberta, near the close of his final argument before the Board in the general freight rates equalization case. Mr. Woods read a brief submission questioning the jurisdiction of Commissioner Calvin Lawrence on the present case, the submission being signed by Mr. Woods and also by W. H. McEwen, counsel for the province of Saskatchewan, and G. G. McGeer, counsel for British Columbia.

"During the last three days the Board has been augmented by the addition of a commissioner who was present only during the first six days of the final hearing. During that period the whole time was occupied with the filing of exhibits and the hearing of a portion of the evidence of one witness upon the issue of the mountain differential.

"Our clients' interests require that we point out to the board that it is impossible

that a commissioner, so circumstanced, can adequately deal with the many important and complex issues raised."

A new record for time consumed and work involved will be established by the present equalization rates hearing which was concluded last week. The Order-in-Council instructing the board to institute this investigation was passed on June 5, 1925, and the hearings of the board pursuant to that order began in February of last year.

A vast pile of evidence has been taken by the board, the number of pages of evidence being 11,575 and the number of words, 3,851,428. It is also computed by those in charge of the stenographic work that two and a half tons of paper have been used for the transcribing of evidence and argument.

E. P. Flintoft, counsel for the Canadian Pacific, in his concluding argument referred to the application of the Quebec Harbor Commission for an 11-cent grain rate from Armstrong, in northern Ontario, to Quebec City over the National Transcontinental and said that the Canadian Pacific was in sympathy with the desire of Quebec to get a larger volume of export freight to handle. He did not think, though, that this 11-cent rate to Quebec, for the late Fall, and 11.6 cents per bushel to Halifax and St. John for the Winter months would solve the grain movement problem.

"We believe," said Mr. Flintoft, "that any interference with the present condition of rates between Fort William or Armstrong to Quebec would lead to action on the part of the United States trunk roads running out of Buffalo to meet that lowered rate, and which action would in turn cause a depression in the grain rates from Georgian Bay ports. We are not so directly affected as the Canadian National, as the application, if granted, would apply initially to the National Transcontinental section between Fort William and Quebec city."

"The real crux of the situation," replied Mr. Flintoft, "is the supply of ocean tonnage and we do not think that the present situation can be altered simply by lowering the grain rate by rail. During the season of navigation the grain is moving by the all-water route to Montreal to the exclusion of the railways." Mr. Flintoft added he did not see why the railways should be asked to make a lower rate when they handled the grain from Fort William eastward only a few months of the year.

Summing up his argument for the C. P. R., Mr. Flintoft claimed that it had been shown that freight rates were not increased in the same proportion to the increases in wages and material prices during the period 1916 to 1920 and the company's surplus during the last three years of that period had consequently been eliminated. It had been shown that freight rates had been reduced during the period 1921 to 1923 in excess of the decrease in operating expenses, so that notwithstanding more efficient methods of operation that had been put into effect there had been no improvement in the company's situation and the average surplus had been still further reduced.

Based on the "fair return" on invest-

ment (as fixed by the Interstate Commerce Commission) during the period 1921-1925, the average net earnings of the company were short of \$15,931,459 per annum. Counsel maintained that the company is being administered in an honest, efficient and economical manner, the benefits of which, he claimed, have accrued directly to the public so that they are enjoying service at freight rates lower than any comparable service in other countries. It was only, he said, by reason of the fact that the C. P. R. had been financed on such conservative lines in the past and that so much money had been put back into the property without being capitalized that it had been able to survive during the war and the strenuous years following it. The railways had not been allowed to take advantage of the period of high prices during the war and since the war the reductions in expenses had not kept pace with the decrease in rates, and, therefore, notwithstanding that the year 1926 was a period of abounding traffic, the surplus was less than \$7,000,000 on a business of nearly \$200,000,000.

Alistair Fraser, counsel for the Canadian National, in his final argument dealt also with the Quebec and Maritime grain rate application. On the general situation he declared, "The Canadian railways are performing a service to the Canadian people comparable to the service given by the best railways in the United States and, for that matter, in the world, and the Canadian railways, in return, are receiving the lowest freight rates in the world."

Dealing particularly with the publicly-owned road, Mr. Fraser declared that it must be given higher rates if it is to maintain its present showing on operation. This year alone, he said, the Canadian National would require \$6,000,000 additional to meet increased wages to its employees. If it had to be subjected to a reduction of freight rates on certain commodities, it should be compensated with higher rates on other commodities. "If it is not," added Mr. Fraser, "the Canadian people will have to pay for the operating loss ultimately."

Mr. Fraser objected strongly to the claim that the Board should grant a 11-cent grain rate from Armstrong to Quebec to enlarge the movement of export grain to the latter point.

Answering the argument of the representatives of the Quebec Harbor Commission that there was a clause in the Grand Trunk Pacific agreement, and inherited by the Canadian National that the railway should provide ocean tonnage to move that grain from Quebec to Europe, Mr. Fraser said: "If there is an obligation upon the Canadian National to provide that tonnage, no action can be taken by the Board to enforce the clause."

Equipment and Supplies

Locomotives

THE ILLINOIS CENTRAL is inquiring for 15 eight-wheel switching type locomotives.

THE FERROCARRIL DE ANTIOQUIA (Colombia) has ordered one consolidation type locomotive from the American Locomotive Company.

Freight Cars

OREGON SHORT LINE.—See Union Pacific.

THE READING COMPANY is inquiring for 1,000 gondola cars.

THE CHICAGO & ILLINOIS MIDLAND is inquiring for 350 all steel gondola cars.

THE GREAT WESTERN OF BRAZIL is inquiring from its London office for 125 12-ton bogie open goods wagons.

THE UNION PACIFIC is inquiring for six dump cars of 20 cu. yd. capacity, for service on the Oregon Short Line.

THE SOUTHERN PACIFIC has ordered 10 extension side dump cars of 21 cu. yd. capacity, from the Clark Car Company.

THE AMERICAN SUGAR REFINING COMPANY has ordered 125 cane cars from the Magor Car Corporation. Inquiry for this equipment was reported in the *Railway Age* of April 30.

THE ST. LOUIS SOUTHWESTERN has ordered 20 additional caboose car underframes from the Virginia Bridge & Iron Company. A previous order for 30 was reported in the *Railway Age* of April 23.

THE DELAWARE, LACKAWANNA & WESTERN has ordered 300 steel hopper cars of 70 tons' capacity from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of April 9.

THE ILLINOIS CENTRAL is inquiring for 500 fifty-ton flat cars, 1,000 fifty-ton gondola cars, 700 fifty-ton hopper cars, 300 seventy-ton hopper cars, 1,000 41-ft., 40-ton, 10-ft. high box cars and 1,000 41-ft., 40-ton 9-ft. high box cars. It was reported in the *Railway Age* of April 9 that this company expected to make inquiries soon for from 4,000 to 5,000 freight cars.

Passenger Cars

THE READING COMPANY is inquiring for 15 steel baggage cars.

THE ILLINOIS CENTRAL is inquiring for six baggage and mail cars and ten baggage and express cars.

THE CHICAGO, NORTH SHORE & MILWAUKEE is inquiring for 10 double-end two-man passenger cars.

Iron and Steel

THE WESTERN MARYLAND is inquiring for 150 tons of steel for bridges.

THE BOSTON & MAINE has given an order for 500 tons of steel for two bridges to the Boston Bridge Works.

THE CHESAPEAKE & OHIO has ordered 1,400 tons of steel for a bridge at Covington, Ky., from the Mount Vernon Bridge Company.

THE PENNSYLVANIA has ordered 2,500 tons of steel for a bridge at Terre Haute, Ind., from the American Bridge Company. An order has also been placed for 700 tons of steel for pier sheds on the North River, New York.

Machinery and Tools

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered a 36-in. time-saver lathe from the Niles-Bement-Pond Company.

THE GENERAL ELECTRIC COMPANY has ordered a 6-ft. plain right line radial drill from the Niles-Bement-Pond Company.

THE JONES & LAUGHLIN STEEL CORPORATION has ordered a 27-in. time-saver lathe from the Niles-Bement-Pond Company.

Signaling

THE NASHVILLE, CHATTANOOGA & ST. LOUIS has ordered from the Union Switch & Signal Company a table interlocking machine and other material for Rockledge, Tenn.

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company an electro-mechanical interlocking for JO cabin, McDonald, Pa.; 16 working mechanical levers and 17 electric.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered from the Union Switch & Signal Company an electro-mechanical interlocking for Ponca City, Okla.; eight working mechanical levers and four electric.

Domestic Railway Purchases of Locomotives, Freight Cars, Passenger Cars, Structural Steel and Rails

	Locomotives		Freight Cars		Passenger Cars		Structural Steel		Rails	
	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926
January	26	60	17,196	11,531	314	217	6,417	6,945	29,000	20,000
February	85	13	4,185	11,353	246	152	620	5,998	65,500	46,200
March	70	407	5,253	8,772	312	112	12,150	12,010	.....	.....
April	27	48	3,362	4,400	0	225	6,120	8,595	12,500	.....
Total four months.....	208	528	29,996	36,146	772	706	25,307	33,448	109,500	66,200

Supply Trade

The Davis Brake Beam Company, Johnstown, Pa., has moved its Pittsburgh, Pa., office from 427 Oliver building to its own building at 418 Sixth avenue.

John A. Coakley, assistant to the vice-president of the American Steel & Wire Company, has been appointed general traffic manager, with headquarters at Cleveland, Ohio.

Joshua D'Esposito, formerly chief engineer and general manager of the Chicago Union Station Company, has opened an office for the practice of general engineering at Chicago.

The Harnischfeger Corporation, Milwaukee, Wis., has opened an office at 1402 Lexington building, Baltimore, Md., in charge of Daniel J. Murphy, formerly manager at Dallas, Tex.

The Youngstown Sheet & Tube Company and the Youngstown Steel Products Company, Youngstown, Ohio, have moved their district sales office to suite 214-220 Continental Oil building, Denver, Colo.

J. de N. Macomb, office engineer of the Atchison, Topeka & Santa Fe, has resigned to become assistant to the vice-president in charge of railroad sales of the Inland Steel Company, Chicago, effective May 15.

Charles M. Schramm, who has been elected vice-president of the Tuco Products Corporation, with headquarters in Chicago, entered railway service with the Buffalo & Susquehanna at Galetton, Pa., in April, 1904. He resigned in



C. M. Schramm

January, 1908, as chief clerk to the superintendent, to enter the employ of the Chicago, Rock Island & Pacific at Chicago. Later he was promoted to chief clerk to the general mechanical superintendent, which position he resigned on March 1, 1919, to become assistant to

the vice-president of the Vapor Car Heating Company at Chicago. He held the latter position until April 16, 1927, when he resigned to become vice-president of the Tuco Products Corporation.

T. L. Miller, who has been elected vice-president of the Tuco Products Corporation, Chicago, was born on March 2, 1886, at Atlantic, Iowa. After graduating from the Chicago high schools in 1903, he entered the employ of lumber and logging road industries in



T. L. Miller

eastern Texas. On March 23, 1907, he entered the employ of the General Railway Supply Company, Chicago, and until 1914 held the positions of office assistant, chief clerk and assistant to the vice-president. On April 15, 1914, when the Tuco Products Company took over the General Railway Supply Company, he was transferred to New York and assigned to special duties and a year later was transferred to Chicago. During the war he was in charge of the manufacturing department of the Tuco Products Corporation and since the war he has been in charge of the western office at Chicago, which position he has held until his recent promotion.

Charles Chandler, assistant engineer of bridges of the Illinois Central, has resigned and has become associated with the J. G. Brill Company, Philadelphia, Pa., as salesman in the automotive car division with territory in southeastern United States.

Brazelton, Wessendorff & Nelms, Inc., 317 Preston avenue, Houston, Tex., have been appointed sales agents for the Whiting Corporation, Harvey, Ill., to handle the Whiting line of cranes, foundry equipment and railroad specialties, in southeastern Texas.

Clarence M. Woolley, chairman of the board of the American Radiator Company, has been elected a member of the

board of directors of the General Electric Company, and Charles W. Appleton of the law department has been elected a vice-president in charge of general relations with public utilities.

The Anchor Post Fence Company of New York and Cleveland, with plants at Cleveland, O., and Garwood, N. J., has secured a site in Baltimore, Md., for a new manufacturing plant. The first unit to be built will be a one-story steel and concrete manufacturing and storage building, 200 ft. wide by 500 ft. long. The Austin Company, Cleveland, are the general contractors.

Dwight W. Morrow, of J. P. Morgan & Co., and Victor M. Cutter, president of the United Fruit Company, have been elected directors of the International General Electric Company; Gerard Swope, president of the General Electric Company, was elected chairman of the board, succeeding the late Anson W. Burchard; Clark H. Minor was re-elected president; Walter J. Edmonds, controller, was elected a new vice-president in charge of financial relations and E. F. Colyer was appointed controller.

J. P. Alexander, manager of the New Haven, Conn., branch office of the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has been appointed Boston manager in charge of all sales and service in New England, with headquarters at Boston, Mass. Mr. Alexander has been associated with the Westinghouse Company for twenty years. George H. Cox, New England manager for the past eight years, has been appointed sales manager at the South Philadelphia Westinghouse Works, in charge of the sales of all the products manufactured at that plant, including steam turbines, condensers, Diesel engines, etc. The Westinghouse Electric & Manufacturing Company on April 26 opened its new Westinghouse building at 267 North Pennsylvania avenue, Wilkes-Barre, Pa. The sales department, formerly in the Miners Bank building, is now on the second floor of the new building and the entire first floor is occupied by the service shop, which is equipped with the latest design of tools and equipment.

Obituary

Edward Everett Ayer, one of the organizers of the Ayer & Lord Tie Company, Chicago, and director of that company since 1893, died at Pasadena, Cal., on May 3 following an operation.

Frederick H. Thatcher, eastern district sales manager of the Worthington Pump & Machinery Corporation, New York, died suddenly on May 2 at Cincinnati, Ohio. Mr. Thatcher was born in New Canaan, Conn., and was a graduate of Cornell, class of 1895, in mechanical engineering. He was with the Worthington Company and its predecessors for thirty years.

Construction

BALTIMORE & OHIO.—This road has let a contract for the reconstruction of a bridge at Greenfield, O., to the Vang Construction Company of Cumberland, Md. The cost of the work is estimated at \$52,000. It has also let a contract to the Bates & Rogers Construction Company of Cleveland, O., for reconstruction of four bridges on its Lake Erie branch to cost about \$30,000. Another contract was let to the H. E. Culbertson Company of Cleveland, O., for reconstruction of two bridges on the Newark division at a cost of about \$15,000.

CHICAGO & ALTON.—Bids have been closed for the revision of 5 miles of line at Macoupin, Ill., to reduce the grade on the northbound main track, and for the construction of 3 miles of second main track, involving the moving of 500,000 cu. yd. of earth and an expenditure of \$400,000.

CHICAGO, BURLINGTON & QUINCY.—Company forces will be employed in the construction of a second main track between Diamond Bluff, Wisconsin, and the North Western crossing, two miles north of East Winona, 13 miles. A contract for grading for portions of this second track has been let to the LaCrosse Dredge Company, LaCrosse, Wis. Under this contract material for grading will be dredged from the Mississippi river. The cost of the entire project is estimated at \$2,300,000.

DENVER & RIO GRANDE WESTERN.—A contract has been let to J. Fred Roberts & Sons Construction Company, Denver, Colo., for change of alignment for a distance of 6,800 ft. on the Pueblo division near Husted, Colo., which is to be completed by August, 1927.

GRAND TRUNK WESTERN.—Plans have been prepared by this company and the Michigan Central, in conjunction with the city of Hamtramck, Mich., for the elimination of a grade crossing at that place. The street will be depressed to permit the construction of a highway subway, at a total cost of about \$1,400,000, of which the two railroads will bear \$850,000.

LEHIGH VALLEY.—The New Jersey Board of Public Utility Commissioners has ordered this company to eliminate a grade crossing of a state highway with its line in Hillsboro township; estimated cost, approximately \$324,000.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—The Minnesota Railroad and Warehouse Commission has approved the application of this company for the construction of a highway undercrossing south of New Brighton, Minn., to eliminate a grade crossing on a state highway.

MISSOURI PACIFIC.—This company will receive new bids on May 5 for the construction of the office building at St. Louis, Mo. A contract for the construction of a boiler house at Nevada, Mo., estimated to

cost about \$10,000, has been let to the H. O. Hirsch & Co., St. Louis. Bids will be received until May 10 for the construction of a union passenger station at Texarkana, Ark., to be used jointly by this company, the St. Louis Southwestern, the Texas & Pacific and the Kansas City Southern. The main station building will be two stories high with outside dimensions of 50 ft. by 282 ft. A one-story mail and baggage annex will have outside dimensions of 40 ft. by 286 ft. Both structures will be built of reinforced concrete, steel, brick and stone.

NORTHERN PACIFIC.—A contract has been let to Morrison & Knudson, Boise, Idaho, for the rebuilding of the line between Arrow, Idaho, and Oro Fino, 29 miles, at an estimated cost of \$400,000.

OREGON, CALIFORNIA & EASTERN.—This company has applied to the Interstate Commerce Commission for an extension of time beyond May 3, 1927, in which to begin the construction of its proposed lines in Klamath and Lake counties, Ore., authorized by the commission conditionally, because of the uncertainty of the situation regarding new construction in the Klamath basin, into which the Great Northern also desires to build. The commission's authorizations have been conditioned on arrangements for joint use of tracks.

PENNSYLVANIA.—Bids have been closed for the construction of two concrete arch bridges near Casey, Ill., estimated to cost about \$50,000.

PENNSYLVANIA.—A contract has been awarded to Henry Steers, Inc., of New

York, for filling for the approaches and yard leading to the proposed Newark Bay bridge between Haverly yard and Greenville yard, New Jersey. Another contract has been let to the Ready & Callaghan Coal Company, of Chicago, for the paving and street improvement work at the Fifty-first street subway at Chicago. A contract has also been awarded to the Cleveland Engineering Construction Company, of Cleveland, O., for the reconstruction of three bridges on the branch between Massillon and Clinton, O.

QUANAH, ACME & PACIFIC.—A contract has been awarded to the Lone Star Construction Company, San Antonio, Tex., for grading, bridging and track laying on the extension between McBain, Tex., and Floydada, which includes 27 miles of line and 2½ miles of siding. Bids will be taken later for the construction of stations, buildings and telegraph lines, and the entire project is estimated to involve the expenditure of \$1,132,000.

SOUTHERN PACIFIC.—In conjunction with the Railroad Commission of California, this company will construct a highway subway under its line near Mossdale, San Joaquin county, Cal. The total cost of the project, which will be borne equally by the state and the railroad, is expected to be about \$75,000.

WABASH.—A contract has been awarded to the P. J. Hannan Company, St. Louis, Mo., for the construction of a steel and concrete viaduct over Vandeventer avenue at Market street, St. Louis.

Railway Finance

AKRON, CANTON & YOUNGSTOWN.—1926 Earnings.—Annual report for 1926 shows net income after interest and other charges of \$200,656 as compared with \$420,462 in 1925. Selected items from the income statement follow:

Akron, Canton & Youngstown		1926	1925
RAILWAY OPERATING REVENUES		\$3,313,877	\$3,194,729
TOTAL OPERATING EXPENSES		\$2,237,364	\$1,947,186
NET REVENUE FROM OPERATIONS		\$1,076,513	\$1,247,543
Railway tax accruals		216,900	176,884
Railway operating income	Not shown		
Hire of freight cars—Dr.		\$425,270	\$433,100
NET RAILWAY OPERATING INCOME		\$438,857	\$624,433
GROSS INCOME		\$512,073	\$688,397
Interest on funded debt		300,219	249,860
TOTAL DEDUCTIONS FROM GROSS INCOME		\$314,417	\$267,936
NET INCOME		\$200,656	\$420,462

BALTIMORE & OHIO.—Bonds.—This company has applied to the Interstate Commerce Commission for authority for a nominal issue of \$11,425,500 of refunding

and general mortgage 5 per cent bonds, to be pledged from time to time as collateral for short-term notes.

CANADIAN NATIONAL.—Equipment Trust Certificates.—Dillon, Read & Co., the National City Company, Lee, Higginson & Co., Bankers Trust Company, Guaranty Company of New York, Harris, Forbes & Co., White, Weld & Co., Continental and Commercial Company, First Trust and Savings Bank, Chicago, and the Illinois Merchants Trust Company have sold \$15,000,000 4½ per cent equipment trust certificates, series J, at prices as follows:

Maturity	Prices to yield
1928	4.50 per cent
1929 and 1930	4.60 per cent
1931 to 1933, incl.	4.65 per cent
1934 to 1942, incl.	4.70 per cent

CANADIAN PACIFIC.—Stock Authorized.—Stockholders at a meeting on May 4, approved an increase in the amount of ordinary stock from \$260,000,000 to \$335,000,000 to be affected by the issue of 750,000 shares from time to time at such prices and terms and in such amounts as the directors may determine. At the same time the number of directors was increased from 15 to 17. Retiring directors were re-
(Continued on page 1421)

Annual Report

Seventy-Third Annual Report of the Chicago, Burlington & Quincy Railroad Company

Chicago, January 3, 1927.

To the Stockholders of the Chicago, Burlington & Quincy Railroad Company:

The following is the report of your Board of Directors for the year ended December 31, 1926:

COMPARATIVE STATEMENT OF INCOME YEARS ENDED DECEMBER 31

Per cent of Ry. Oper. Revenue	1926	RAILWAY OPERATING REVENUES	1925	Per cent of Ry. Oper. Revenue
75.26	\$121,410,650.40	Freight	\$118,670,808.08	74.56
15.06	24,288,306.90	Passenger	25,116,398.38	15.78
2.33	3,765,802.07	Mail	4,188,505.54	2.63
2.66	4,292,310.49	Express	3,911,481.37	2.46
2.84	4,577,554.54	All other transportation	4,431,329.18	2.79
1.62	2,617,386.45	Incidental	2,489,168.46	1.56
.23	365,431.34	Joint facility	347,486.94	.22
100.00	\$161,317,442.19	Total railway operating revenues	\$159,155,177.95	100.00
RAILWAY OPERATING EXPENSES				
14.85	\$23,965,177.70	Maintenance of way and structures	\$19,737,011.24	12.40
18.68	30,131,658.29	Maintenance of equipment	33,669,420.12	21.16
1.91	3,084,633.02	Traffic	2,993,579.69	1.88
33.67	54,315,493.88	Transportation	55,021,562.89	34.57
1.09	1,758,420.32	Miscellaneous operations	1,587,033.11	1.00
2.67	4,303,938.77	General	4,365,866.83	2.74
Cr. .68	Cr. 1,096,513.75	Transportation for investment—Credit	Cr. 702,605.76	Cr. .44
72.19	\$116,462,808.23	Total railway operating expenses	\$116,671,868.12	73.31
27.81	\$44,854,633.96	Net revenue from railroad operations	\$42,483,309.83	26.69
.....	\$11,480,061.28	Railway tax accruals	\$10,975,481.17	.....
.....	59,084.16	Uncollectible railway revenues	49,943.49	.....
.....	\$33,315,488.52	Railway operating income	\$31,457,885.17	.....
.....	Dr. 1,315,913.29	Hire of equipment (Net)	Dr. 1,316,138.67	.....
.....	Dr. 2,043,744.53	Joint facility rents (Net)	Dr. 2,009,828.75	.....
.....	\$29,955,830.70	Net railway operating income	\$28,131,917.75	.....
OTHER NON-OPERATING INCOME				
.....	\$610,872.27	Miscellaneous rent income	\$634,658.79	.....
.....	2,306,574.37	Dividends and miscellaneous interest	1,365,608.95	.....
.....	79,157.72	Miscellaneous income	78,674.82	.....
.....	\$2,996,604.36	Total other non-operating income	\$2,078,942.56	.....
.....	\$32,952,435.06	Gross income	\$30,210,860.31	.....
OTHER DEDUCTIONS FROM GROSS INCOME				
.....	\$191,358.38	Miscellaneous rents	\$179,474.93	.....
.....	8,626,980.98	Interest on funded debt	8,693,293.76	.....
.....	34,583.31	Interest on unfunded debt	41,954.75	.....
.....	110,544.00	Amortization of discount on funded debt	110,543.40	.....
.....	1,000.00	Miscellaneous income charges	1,000.00	.....
.....	\$8,964,466.67	Total other deductions from gross income	\$9,026,266.84	.....
.....	\$23,987,968.39	Net income	\$21,184,593.47	.....
DISPOSITION OF NET INCOME				
.....	\$98,034.67	Sinking funds	\$293,500.50	.....
.....	17,083,800.00	Dividends	17,083,785.00	.....
.....	\$17,181,834.67	Total appropriations of income	\$17,377,285.50	.....
.....	\$6,806,133.72	Income balance transferred to profit and loss	\$3,807,307.97	.....

GENERAL OPERATIONS

REVENUES:

Total Operating Revenues for 1926	\$161,317,442
Total Operating Revenues for 1925	159,155,178
Increase	\$2,162,264 1.36%

The increase was made up as follows:

Freight	Increased	\$2,739,842	2.31%
Passenger	Decreased	828,091	3.30%
Express	Increased	380,829	9.74%
Other Transportation Revenues	Decreased	276,478	3.21%
Demurrage	Decreased	16,644	4.26%
Other Incidental Operating Revenues	Increased	162,806	6.66%
Total Increase		\$2,162,264	

Generally, there was little change in the character of freight handled, the increase of \$2,739,842, or 2.31%, in freight revenue being due to an increase of 2.87% in ton miles of revenue freight carried.

Unfavorable crop conditions in the territory served by the Burlington resulted in a decrease of 4,869 carloads of grain, the number of cars of grain loaded on our own rails in territory west of the Missouri River decreasing more than 7,000 cars, reflecting an almost total crop failure in some localities. Offsetting this decrease in grain tonnage was an increase of 10,420 carloads of fruits and vegetables. This movement increased 22.34% over the preceding year and was the largest in our history. The change in the location of the fruit and vegetable market district in Chicago to a location within a few blocks of our team tracks placed us in an advantageous position to solicit this character of traffic. Increases in a number of other agricultural commodities resulted in total products of agricultural showing an increase of 5.44% over the preceding year.

The movement of live stock during the past year compared favorably with preceding years, with the exception that there was lighter movement of hogs. Governmental reports showed a smaller number of swine on farms in 1926 than for many years. Taking the country as a whole, the number of hogs marketed was 10% less than in 1925 and 28% less than in 1924. The number of marketable hogs was further reduced as result of a severe cholera epidemic in the fall of 1926, affecting principally the territory served by the Burlington. There was but little change in the movement of animal products over the preceding year. The butter and cheese tonnage was the heaviest in the history of the railroad, due to greater diversification in farm pursuits. The total live stock movement and animal products increased 25,400 tons, or .86%.

The bituminous coal handled during the past year shows a slight increase over last year and the five preceding years. Coal mined along this road made a better showing than the coal received from connecting lines. There was a decrease of 4,823 cars, or 8.18% in coal received from connections. Washouts occurred on the Beardstown (Illinois) Division in October, and resulted in some loss of business from the southern Illinois fields. A continued increase of tonnage from Western Kentucky, Eastern Kentucky and West Virginia into competitive territory naturally tributary to southern Illinois also affected our tonnage. There was but little change in the tonnage of other important products of mines, total mine products showing an increase of 151,832 tons, or .79% over last year.

Forest products increased 110,355 tons, or 4.66%. There was a heavy movement of lumber from the North Western Coast States, in addition to the new business handled as result of inauguration of through service in connection with the Gulf, Mobile & Northern Railroad which became effective August 2, 1926.

The movement of manufactured articles was substantial during the past year, the tonnage increasing 95,648 tons, or 1.04%. The tonnage of a number of important commodities under this classification broke all previous records, for instance, the tonnage of automobiles and auto-trucks amounted to 170,000 tons as compared with a previous record of 156,000 tons; the tonnage of refined petroleum and products increased 111,199 tons over the record tonnage of 1924.

[ADVERTISEMENT]

A comparison of tonnage with 1925 commodities handled shows the following:

Products of Agriculture.....	Increased	348,035 tons	4.39%
Animals and Products.....	Increased	25,399 tons	.86%
Products of Mines.....	Increased	151,832 tons	.79%
Products of Forest.....	Increased	110,355 tons	4.66%
Manufactured Products.....	Increased	95,648 tons	1.04%
Less-than-carload tonnage.....	Decreased	105,675 tons	6.25%

Total tonnageIncreased 625,594 tons 1.44%

A comparison of carloads shows:

Total Cars (all commodities) in 1926.....	1,427,076 cars
Total Cars (all commodities) in 1925.....	1,394,884 cars

Increased in 1926..... 32,192 cars 2.31%

On August 2, 1926, we effected a traffic arrangement with the Gulf, Mobile & Northern R. R. Co. by way of Paducah, Ky., that Company having made a trackage contract with The Nashville, Chattanooga & St. Louis Railway for use of its line between Jackson, Tenn., and Paducah. During the period August 2, 1926, to December 31, 1926, a satisfactory and growing interchange of freight traffic was inaugurated. With the completion of a connection now under construction between the Gulf, Mobile & Northern R. R. Co. and New Orleans Great Northern R. R. Co. a substantial increase in the interchange between those roads and ours is anticipated, as this will establish a new through route to New Orleans.

The decrease in passenger revenue was due almost entirely to hard road development and the increased use of automobiles. We carried 513,745 fewer revenue passengers than in 1925, a decrease of 3.04%; the decrease in passenger miles being 21,896,564, or 2.45%. The average haul per passenger, exclusive of commutation service, increased 4.8 miles over the preceding year, indicating that the decrease was almost entirely in the short haul traffic. The average revenue per passenger mile decreased slightly, due principally to the greater number of low-rate week-end excursions operated during 1926, the gross revenue from this source amounting to \$185,741, as against \$155,000 during 1925. The earnings from Chicago District commutation traffic increased \$210,160, or 17.1% which is accounted for by a 15% increase in commutation rates made the first of the year, as well as some growth in the traffic. The year 1926 was the second of the Burlington Escorted Tours Bureau, operated in conjunction with the Great Northern and Northern Pacific Ry. Companies. In 1926 we handled a total of 2,737 passengers, an increase of 540 passengers, or 24.59% over 1925. The gross revenue to the three lines from this class of traffic in 1926 showed an increase of \$40,610, or 32.44%.

OPERATING STATISTICS.

Tons of revenue freight carried, 1926.....	43,934,446	
Tons of revenue freight carried, 1925.....	43,308,852	
Increase	625,594	1.44%
Revenue tons one mile, 1926.....	12,651,221,639	
Revenue tons one mile, 1925.....	12,298,287,741	
Increase	352,933,898	2.87%
Revenue tons per train mile, 1926.....	679.96	
Revenue tons per train mile, 1925.....	668.89	
Increase	11.07	1.65%
Revenue tons per loaded car, 1926.....	22.93	
Revenue tons per loaded car, 1925.....	23.35	
Decrease .....	.42	1.80%
Average revenue per ton mile (cents), 1926.....	.960	
Average revenue per ton mile (cents), 1925.....	.965	
Decrease .....	.005	0.52%
Average distance hauled per revenue ton (miles), 1926.....	287.96	
Average distance hauled per revenue ton (miles), 1925.....	283.97	
Increase	3.99	1.41%
Revenue passengers carried, 1926.....	16,365,795	
Revenue passengers carried, 1925.....	16,870,540	
Decrease	513,745	3.04%
Revenue passengers carried one mile, 1926.....	871,773,361	
Revenue passengers carried one mile, 1925.....	893,669,925	
Decrease	21,896,564	2.45%
Average distance carried, revenue passengers, 1926.....	53.27	
Average distance carried, revenue passengers, 1925.....	52.94	
Increase33	0.62%

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EXPENDITURES (OPERATING):

Total operating expenses, 1926.....	\$116,462,808.23
Total operating expenses, 1925.....	116,671,868.12

Decrease \$209,059.89 0.18%

The reduction of \$209,059.89 in Operating Expenses was the result of a combination of factors, each having a direct bearing upon one of the three major divisions of operating expenditure, as follows:

In line with a definite policy of maintaining our facilities in suitable condition for an improved handling of traffic, increased expenditures in maintenance of way were incurred totalling \$4,228,166.46 more than in 1925. This increase of 21.42% was expended almost exclusively on track and road-bed, with a resultant improvement in general operating conditions.

Experience showed that the rate of depreciation charged on equipment during recent years could be properly reduced with improved character and condition of equipment, and upon January 1, 1926, the rate was reduced from 6% to 4% causing a net reduction during the year in the amounts charged to operating expenses, of \$1,575,323.02.

During the entire period since the close of Federal Control, a continuous program has been carried on to recondition equipment and bring it to an efficient modern standard. This point was reached in 1926 with the result that expenditures for the year for maintenance of equipment was decreased \$1,962,438.81.

Transportation Expenses were reduced \$706,069.01 or 1.28% as the result of increased efficiency, improved facilities and a continued policy of rigid economy in all departments. The decrease was distributed through a large number of items in the classified accounts and reflects the cumulative effect of numerous savings that have been accomplished and some of the more important of which are hereafter enumerated.

In Illinois particularly, and also to some extent in Iowa and Missouri, there were several periods of excessive rainfall during the summer and early fall, resulting in interruption to traffic by washouts of bridges and embankments. Restoration of embankments, clearing out cuts, rebuilding bridges, and restoring ballast was necessary and added to normal maintenance of way expenditures as well as increasing the transportation expenditures during the periods of interrupted traffic.

INDUSTRIAL:

The number of new leases made during 1926 reflects a further expansion of industrial development throughout our territory. There were 394 new industrial leases executed, and new industrial tracks were constructed as follows:

	New tracks	Extensions
On Lines East of the Missouri River.....	34	7
One Lines West of the Missouri River.....	10	6
	44	13

The activity on Lines East, and particularly in Illinois (including the Chicago District) during the past year was very pronounced. We are now making deliveries on our own rails to 571 separate industries located in the Chicago District.

The beet sugar industry in Nebraska, Wyoming and Colorado reports a very prosperous year. In Nebraska the value of the sugar beet crop has been exceeded but once, and the State has advanced from fifth place, and was in line for second place in 1926 until an abnormally early frost reduced production. A new beet sugar factory started operations at Minatare, Nebraska, by the Great Western Sugar Company, and the Holly Sugar Corporation completed a factory at South Torrington, Wyoming, for whose accommodation we have constructed a side track at Torrington for the unloading of beets and other supplies.

AGRICULTURAL:

Unfavorable weather conditions curtailed production and materially reduced grain shipments in 1926. However, definite progress has been made along the line of diversified farming, resulting in increases in dairy and poultry products and potato and sugar beet production. The quality of live stock has also been improved. Educational campaigns to diversify and increase the farmers' income have been effective.

The management takes pleasure in recording its appreciation of the loyalty shown, and efficient service rendered by the officers and employees of the Company during the past year.

By order of the Board of Directors.

HALE HOLDEN,
President.

Railway Finance

(Continued from page 1418)

elected and the two new directors were James A. Richardson of Winnipeg and W. J. Blake Wilson of Vancouver. President E. W. Beatty, commenting on the rate situation, said:

"It will be interesting to you to know that the return on the investment—not valuation—of your properties for 1926 was 4.66 per cent, leaving a surplus from railway operations after payment of charges and dividends of .77 per cent. The average return on investment for what is known as Class I railways in the United States for the same year was 5.13 per cent.

"This rate applied to the investment in the Canadian Pacific Railway properties would produce \$49,480,000 in net earnings, and a fair return of 5 1/4 per cent would yield \$55,460,000. These figures indicate that the Canadian railways are not yet earning adequate net revenues and that with mounting wage scales they should not be asked to submit to further reductions in rates.

"The question is often asked why it is that your company under a low scale of rates is able to earn its regular dividends of 7 per cent from rail earnings. The answer to that question is simple. The capitalization of your company is extremely moderate notwithstanding the rather substantial borrowings it has been necessary to make since the war. The actual cash invested in its rail properties is \$964,537,000, while the par value of its securities and stocks in the hands of the public is \$678,450,000. In other words, there is invested in the property \$286,084,000 not represented by any security and which does not carry any interest or other charges."

CARBON COUNTY.—Abandonment.—The Interstate Commerce Commission has denied an application of this carrier for permission to abandon interstate commerce on its line extending from a connection with the Sunnyside branch of the Denver & Rio Grande Western to the coal mine properties of the Columbia Steel Corporation, 4.79 miles, in Carbon County, Utah, operation of which line commenced on July 5, 1923. The carrier proposes to continue in intrastate operation and contended "that it should not be burdened, under existing conditions, with the necessity of complying with the many requirements of this commission and the necessary heavy expense thereof, when there is no corresponding benefit to the public." The commission stated that "It may fairly be said that railroad companies should not be permitted to regard their status as common carriers engaged in interstate commerce merely as a garment to be worn or cast aside at will to meet the traffic exigencies at any particular time." The commission also commented on the relations with the Columbia Steel Corporation saying that "the sums paid to that company have all the appearance of a concession or rebate from the published tariff rates."

CHICAGO, BURLINGTON & QUINCY.—1926 Earnings.—Annual report for 1926 shows net income after interest and other fixed charges of \$23,987,968 equivalent to \$14.04 a share on the outstanding stock. Net income in 1925 was \$21,184,593 or \$12.40 a share. See excerpts from annual report on adjoining pages.

CHICAGO, MILWAUKEE & ST. PAUL.—Bonds.—The Interstate Commerce Commission has authorized the authentication and delivery of \$6,455,000 of general mortgage 5 per cent gold bonds.

CHICAGO, ROCK ISLAND & PACIFIC.—Bonds.—The Interstate Commerce Commission has authorized this company (a) to issue \$167,000 general mortgage bonds to be delivered to the trustees under the

carrier's first and refunding mortgage and (b) to issue \$167,000 of first and refunding mortgage bonds to be pledged as collateral security for short-term notes.

DENVER & RIO GRANDE WESTERN.—Equipment Trust Certificates.—The Interstate Commerce Commission has authorized the issuance of \$1,575,000 4 1/2 per cent equipment trust certificates, series C, to be sold to the Guaranty Company of New York at 98.3017, giving an average annual cost to the carrier of approximately 4.77 per cent. The carrier solicited bids from 13 banking houses and four were received, the Guaranty Company being the highest. The equipment includes 10 freight locomotives, 4 dining cars and 300 automobile cars, having a total approximate cost of \$2,103,621.

DETROIT, GRAND HAVEN & MILWAUKEE.—Acquisition.—The Interstate Commerce Commission has authorized this company which is a subsidiary of the Canadian National, to acquire control by lease of the railroad properties of the Grand Rapids Terminal Company.

DULUTH & IRON RANGE.—1926 Earnings.—Annual report for 1926 shows net income after interest and other charges of \$1,750,553 as compared with \$1,403,435 for 1925. Selected items from the income statement follow:

	1926	1925
RY. OPERATING REVENUES.....	\$7,041,389	\$6,813,655
Maintenance of way.....	1,073,965	1,074,677
Main. of equipment.....	1,312,296	1,381,076
Transportation	1,909,974	1,971,799
TOTAL OPERATING EXPENSES.....	4,615,629	4,730,399
Operating ratio	65.55	69.43
NET REVENUE FROM OPERATIONS	2,425,760	2,083,256
Railway tax accruals....	550,602	527,807
Railway operating income..	1,875,129	1,555,359
NET RAILWAY OPERATING INCOME	1,917,645	1,589,496
GROSS INCOME	2,346,384	2,003,243
Interest on funded debt..	407,550	407,550
TOTAL DEDUCTIONS FROM GROSS INCOME.....	595,831	599,809
NET INCOME	1,750,553	1,403,435

DULUTH, MISSABE & NORTHERN.—1926 Earnings.—Annual report for 1926 shows net income after interest and other fixed charges of \$7,805,029 equivalent to \$189.78 a share on the common stock. Net income in 1925 was \$6,887,370 or \$167.47 a share. Selected items from the income statement follow:

	1926	1925
RAILWAY OPERATING REVENUES	\$18,943,968	\$18,054,509
TOTAL OPERATING EXPENSES	\$8,403,040	\$8,220,970
NET REVENUE FROM OPERATIONS	\$10,540,928	\$9,833,539
Railway tax accruals..	2,474,438	1,645,578
Railway operating income	\$8,066,468	\$8,187,883
NET RAILWAY OPERATING INCOME	\$8,015,773	\$8,123,036
GROSS INCOME.....	\$8,858,159	\$8,891,197
TOTAL DEDUCTIONS FROM GROSS INCOME.....	\$1,053,129	\$2,003,826
NET INCOME.....	\$7,805,029	\$6,887,370

FONDA, JOHNSTOWN & GLOVERSVILLE.—1926 Earnings.—Annual report for 1926 shows net income of \$31,411 as compared with \$42,954 for 1925. Selected items from the income statement follow:

	1926	1925
RAILWAY OPERATING REVENUES	\$1,217,034	\$1,245,843
TOTAL OPERATING EXPENSES	\$815,859	\$821,157
Operating ratio.....	67.04	65.91
NET REVENUE FROM OPERATIONS	\$401,175	\$424,687
Railway tax accruals..	73,627	86,200
Railway operating income	\$327,548	\$338,487
Non-operating income..	\$72,121	\$65,123
GROSS INCOME.....	\$416,323	\$424,021
NET INCOME.....	\$31,411	\$42,954

GALVESTON, HARRISBURG & SAN ANTONIO.—Valuation.—The hearing before Examiner Marchand of the Interstate Commerce Commission on the tentative valuation of this property and other Southern Pacific lines east of El Paso was assigned for May 2, but the company elected to have its case handled by the conference method.

GREAT NORTHERN.—Acquisition of Lines.—The Interstate Commerce Commission has issued a certificate authorizing the Spokane, Coeur d'Alene & Palouse, formerly known as the Idaho Central, and all the stock of which is owned or subscribed by the Great Northern, to acquire and operate the lines of the Spokane & Eastern Railway & Power Company and of the Inland Empire, both of which lines are operated electrically and which were successor companies in 1920 to the Spokane & Inland Empire which had been involved in foreclosure proceedings. The Spokane & Eastern operates a line from Spokane, Wash., to Hayden Lake, 40.53 miles, from Liberty Lake Junction to Liberty Lake, 2.20 miles, and from Spokane to Flora, 10.39 miles. The lines of the Inland Empire extend from Spokane to Moscow, 88.90 miles, and from Spring Valley Junction to Colfax, 36.82 miles.

In connection with this acquisition the Spokane, Coeur d'Alene & Palouse has been authorized to operate under trackage rights over rails to be built by the Great Northern connecting the two companies to be acquired and giving them access to the Great Northern's passenger and freight terminals at Spokane and the commission has issued a certificate authorizing the Great Northern to construct this line which will be 995 ft. in length. Also in connection with the proposed changes the commission has authorized the Spokane Coeur d'Alene & Palouse to issue \$860,000 demand promissory notes and to assume obligation and liability with respect to \$442,000 first mortgage bonds of the Coeur d'Alene & Spokane which bonds will also be guaranteed by the Great Northern. The commission believed that the acquisition of the two electric lines by the Great Northern subsidiary would result in substantial economies and afford better service, would enable the Great Northern to increase its traffic and said, furthermore, that the consummation of the plan would eliminate the operation of the trains of the two electric

lines through the streets of Spokane and release their extensive terminal properties in that city for industrial use. Commissioner Eastman dissented.

LEHIGH & HUDSON RIVER.—1926 Earnings.—Annual report for 1926 shows net income of \$731,135 as compared with \$418,406 for 1925. Selected items from the income statement follow:

Lehigh & Hudson River	
	1926 1925
RAILWAY OPERATING REVENUES	\$3,567,844 \$3,053,596
TOTAL OPERATING EXPENSES	\$2,343,112 \$2,237,097
NET REVENUE FROM OPERATIONS	\$1,224,772 \$816,499
Railway tax accruals	\$203,787 \$155,504
Railway operating income	\$1,020,984 \$660,977
Equipment rents—Dr.	203,642 146,683
Joint facility rents—Dr.	145,554 135,903
Non-operating income	\$59,932 \$40,710
GROSS INCOME	\$1,080,917 \$701,687
TOTAL DEDUCTIONS FROM GROSS INCOME	\$349,782 \$283,281
NET INCOME	\$731,135 \$418,406

LEHIGH & NEW ENGLAND.—Bonds.—This company has applied to the Interstate Commerce Commission for authority to sell to Drexel & Co., at 102 and interest, \$750,000 of general mortgage 5 per cent bonds the nominal issue of which has heretofore been authorized by the commission.

LOUISVILLE & NASHVILLE.—1926 Earnings.—Annual report for 1926 shows net income after interest and other fixed charges of \$19,422,111 equivalent to \$16.60 a share on the capital stock. Net income in 1925 was \$18,700,711 or \$15.98 a share. Selected items from the income statement follow:

Louisville & Nashville	
	1926 1925
Aver. mileage operated	5,038.21 5,041.97
RAILWAY OPERATING REVENUES	\$147,136,530 \$142,244,307
Maintenance of way	\$21,715,672 \$20,332,051
Main. of equipment	33,029,477 32,149,513
Transportation	50,658,351 49,144,204
TOTAL OPERATING EXPENSES	\$112,462,491 \$108,402,256
NET REVENUE FROM OPERATIONS	\$34,674,140 \$33,842,051
Railway tax accruals	7,927,642 7,081,932
Ry. operating income	\$26,722,760 \$26,760,119
Equipment rents—Cr.	812,459 518,467
Joint facility rents—Dr.	495,900 339,968
NET RAILWAY OPERATING INCOME	\$27,039,319 \$26,938,619
Non-operating income	3,783,224 3,219,505
GROSS INCOME	\$30,822,543 \$30,158,123
Interest on funded debt	11,023,056 11,155,143
TOTAL DEDUCTIONS FROM GROSS INCOME	\$11,400,432 \$11,457,412
NET INCOME	\$19,422,111 \$18,700,711

MAINE CENTRAL.—Dividends.—The directors have declared a quarterly dividend of \$1.00 on the common stock payable July 1, thus putting this stock on a 4 per cent annual dividend basis. In 1926 the company declared two dividends of \$1.00 each or \$2.00 for the year. This company paid dividends on its common stock at the rate of 6 per cent annually from October, 1911, to October, 1920, after which no common dividends were paid until June, 1926.

MINNEAPOLIS & ST. LOUIS.—Receiver's Certificates.—The Interstate Commerce Commission has authorized this company to issue \$1,475,000 receiver's certificates to extend or refund certificates of a like amount maturing in April and May.

MISSISSIPPI CENTRAL.—1926 Earnings.—Annual report for 1926 shows net income of \$139,407 as compared with \$187,195 for 1925. Selected items from the income statement follow:

Mississippi Central	
	1926 1925
RAILWAY OPERATING REVENUES	\$1,688,878 \$1,655,520
TOTAL OPERATING EXPENSES	\$1,210,876 \$1,118,333
NET REVENUE FROM OPERATIONS	\$478,002 \$537,187
Railway tax accruals	121,299 131,985
Railway operating income	\$356,287 \$402,943
GROSS INCOME	\$441,608 \$489,732
NET INCOME	\$139,407 \$187,195

NASHVILLE, CHATTANOOGA & ST. LOUIS.—1926 Earnings.—Annual report for 1926 shows net income after interest and other fixed charges of \$2,511,258 equivalent to \$15.70 a share on the capital stock. Net income in 1925 was \$2,529,042 or \$15.80 a share. Selected items from the income statement follow:

Nashville, Chattanooga & St. Louis	
	1926 1925
Average mileage operated	1,259.53 1,259.04
RAILWAY OPERATING REVENUES	\$24,023,878 \$24,000,050
Maintenance of way	\$3,499,473 \$3,486,474
Maintenance of equipment	5,001,608 5,215,623
Transportation	8,558,163 8,567,232
TOTAL OPERATING EXPENSES	\$18,992,860 \$19,185,096
Operating ratio	79.06 79.94
NET REVENUE FROM OPERATIONS	\$5,031,018 \$4,814,954
Railway tax accruals	1,075,000 759,516
Railway operating income	\$3,952,348 \$4,050,842
Equipment rents—Dr.	114,767 259,148
Joint facility rents—Cr.	180,574 146,111
NET RAILWAY OPERATING INCOME	\$4,018,155 \$3,937,805
Non-operating income	287,640 406,607
GROSS INCOME	\$4,305,796 \$4,344,412
Rent for leased roads	806,506 806,506
Interest on funded debt	917,876 929,216
TOTAL DEDUCTIONS FROM GROSS INCOME	\$1,794,538 \$1,815,370
NET INCOME	\$2,511,258 \$2,529,042

NEW YORK, NEW HAVEN & HARTFORD.—Acquisition of Lease.—The Interstate Commerce Commission has authorized the New Haven to assume the lease of the Hartford & Connecticut Western which lease was held by the Central New England. This step was a condition of the Commission's recent approval of the merger of the Central New England.

NEW YORK, ONTARIO & WESTERN.—1926 Earnings.—Annual report for 1926 shows net income after interest and other fixed charges of \$775,128 equivalent to \$1.33 a share on the common stock. Net income in 1925 was \$41,066 or 7 cents a share. Selected items from the income statement follow:

New York, Ontario & Western

	1926 1925
RAILWAY OPERATING REVENUES	\$13,974,119 \$12,247,511
Maintenance of way	\$1,908,831 \$1,890,167
Maintenance of equipment	2,726,659 2,322,776
Transportation	5,685,711 5,397,394
TOTAL OPERATING EXPENSES	\$10,974,004 \$10,319,418
Operating ratio	78.53 84.25
NET REVENUE FROM OPERATIONS	\$3,000,115 \$1,928,093
Railway tax accruals	570,416 431,181
Railway operating income	\$2,427,038 \$1,495,700
Equipment rents—Dr.	509,304 327,575
Joint facility rents—Dr.	109,604 76,665
NET RAILWAY OPERATING INCOME	\$1,808,130 \$1,091,461
Non-operating income	379,045 353,766
GROSS INCOME	\$2,187,176 \$1,445,226
Rent for leased roads	211,000 211,000
Interest on funded debt	1,159,625 1,162,325
TOTAL DEDUCTIONS FROM GROSS INCOME	\$1,412,047 \$1,404,159
NET INCOME	\$775,128 \$41,066

PENNSYLVANIA.—Valuation.—Hearings before Examiners Gibson and Woodrow of the Interstate Commerce Commission on the tentative valuation reports on the various companies comprised in the Pennsylvania system have been postponed to May 16.

PENNSYLVANIA.—Abandonment of Branch.—The Interstate Commerce Commission has issued a certificate authorizing the Camden & Burlington County and the Pennsylvania, lessee, to abandon that portion of the Vincentown branch extending from the Mt. Holly-Pemberton public road south of Ewansville, N. J., to Vincentown, 2.4 miles.

PITTSBURGH & WEST VIRGINIA.—1926 Earnings.—Annual report for 1926 shows net income after interest and other fixed charges of \$3,211,193 equivalent to \$10.62 a share on the capital stock. Net income in 1925 was \$1,898,478 or \$6.27 a share. Selected items from the income statement follow:

Pittsburgh & West Virginia	
	1926 1925
RAILWAY OPERATING REVENUES	\$5,156,484 \$4,856,384
TOTAL OPERATING EXPENSES	\$2,902,850 \$2,967,268
NET REVENUE FROM OPERATIONS	\$2,253,634 \$1,889,116
Railway tax accruals	705,922 561,327
Railway operating income	\$1,547,563 \$1,327,142
Hire of freight cars	1,163,153 808,422
Joint facility rents—Net Cr.	10,842 30,732
NET RAILWAY OPERATING INCOME	\$2,713,041 \$2,109,434
Non-operating income	1,207,205 339,633
GROSS INCOME	\$3,920,246 \$2,449,067
Rent for leased roads	505,439 397,491
Interest on funded debt	177,750 132,750
TOTAL DEDUCTIONS FROM GROSS INCOME	\$709,053 \$550,589
NET INCOME	\$3,211,193 \$1,898,478

*Includes West Side Belt Operations.

QUANAH, ACME & PACIFIC.—Acquisition of Line.—The Interstate Commerce Commission has authorized this company to acquire the Motley County which extends from Matador Junction to Matador, 8.47 miles, in Motley County, Tex.

READING.—Extension of Time.—The Federal District Court at Philadelphia on May 3 extended the time in which interest certificates for stock of the Philadelphia & Reading Coal & Iron Corporation may be converted under the Reading dissolution plan of the Supreme Court. The extension was granted at the request of the Reading Company, primarily to give the Baltimore & Ohio which holds 303,300 of the 571,238 certificates outstanding, further opportunity to dispose of its interest. The final conversion period would have expired July 1, 1927. In a report filed with the District Court, Agnew T. Dice, president of the Reading, stated that the unsettled conditions in the anthracite region the last three years had been a "serious impediment" to the efforts of the Baltimore & Ohio to dispose of its Reading coal holdings.

RICHMOND, FREDERICKSBURG & POTOMAC.—1926 Earnings.—Annual report for 1926 shows net income after interest and other fixed charges of \$2,473,338 or a decrease of \$426,483 under 1925. Selected items from the income statement follow:

	1926	Increase or Decrease
Aver. mileage operated...	122	
RAILWAY OPERATING REVENUES	\$12,801,737	—\$89,438
Maintenance of way...	\$1,331,455	\$18,895
Main. of equipment...	2,124,644	248,784
Transportation	4,276,084	178,735
TOTAL OPERATING EXPENSES	\$8,656,356	\$501,315
Operating ratio	67.62	4.36
NET REVENUE FROM OPERATIONS	\$4,145,381	—\$590,753
Railway tax accruals	858,762	70,800
Railway operating income	\$3,286,241	—\$661,752
Equipment rents—Dr.	481,525	—30,063
Joint facility rents, Dr.	141,760	—14,960
NET RAILWAY OPERATING INCOME	\$2,662,956	—\$614,729
Non-operating income	262,849	61,004
GROSS INCOME	\$2,925,805	—\$553,725
Interest on funded debt	361,967	—5,622
TOTAL DEDUCTIONS FROM GROSS INCOME	\$452,468	—\$127,241
NET INCOME	\$2,473,338	—\$426,483

ST. LOUIS & O'FALLON.—Injunction in Recapture Case.—The St. Louis & O'Fallon, on May 3, filed an injunction suit in the United States Circuit Court of Appeals at St. Louis opposing the recent decision of the Interstate Commerce Commission requiring the payment of \$226,000 plus interest in recapture. The railroad contended that the valuation should have been upon a replacement cost basis, that the excess profits or recapture clause of the Transportation Act is unconstitutional because it provides for confiscation of property without due process of law, and that the Interstate Commerce Commission erred in not considering the St. Louis & O'Fallon as part of a system with the Manufacturers Railway Company.

SEABOARD AIR LINE.—Abandonment of Branch.—The Interstate Commerce Commission has issued a certificate authorizing this company to abandon a branch from Buda, Fla., to Norwillis, known as the Buda branch, 9.84 miles, originally built to serve phosphate-rock operations since discontinued.

TEXAS & PACIFIC.—Acquisition of Abilene & Southern Authorized.—The Interstate Commerce Commission has authorized this company to acquire control of the Abilene & Southern by purchase of its entire capital stock and outstanding bonds. Commissioner Eastman entered a dissenting opinion.

TEXAS & PACIFIC.—1926 Earnings.—Annual report for 1926 shows net income after interest and other fixed charges of \$3,927,341 equivalent after allowance for 5 per cent dividends on the preferred stock to \$7.07 a share on the common stock. Net income in 1925 was \$3,821,555 or \$6.80 a share. Selected items from the income statement follow:

	1926	1925
Average mileage operated.	1,953.62	1,952.96
RAILWAY OPERATING REVENUES	\$35,449,650	\$35,272,899
Maintenance of way...	\$5,414,907	\$5,205,646
Maintenance of equipment	6,511,860	6,982,329
Transportation	12,473,426	12,363,073
TOTAL OPERATING EXPENSES	\$26,488,388	\$26,453,802
Operating ratio	74.72	75.00
NET REVENUE FROM OPERATIONS	\$8,961,262	\$8,819,097
Railway tax accruals	1,849,921	1,917,500
Railway operating income	\$7,098,476	\$6,866,691
Hire of freight cars—Dr.	953,835	967,162
Joint facility rents—Dr.	9,086	75,455
NET RAILWAY OPERATING INCOME	\$6,240,676	\$5,974,105
Non-operating income	368,658	373,137
GROSS INCOME	\$6,609,333	\$6,347,242
Interest on funded debt	2,474,731	2,413,255
TOTAL DEDUCTIONS FROM GROSS INCOME	\$2,681,993	\$2,525,687
NET INCOME	\$3,927,341	\$3,821,555
Disposition of net income:		
Dividends on preferred stock	\$1,185,150	\$1,185,150
Surplus for year carried to profit and loss	\$2,742,191	\$2,636,405

TRANS-FLORIDA CENTRAL.—Acquisition.—The Interstate Commerce Commission has authorized this company conditionally to acquire and operate the Fellsmere Railroad. Stating that it does not "favor the control and operation of lines constituting portions of our transportation system by, or primarily in the interest of, particular industries," the Interstate Commerce Commission has authorized this company, controlled by the Ammoniate Products Corporation, to acquire and operate a line known as the Fellsmere Railroad, from Sebastian to Fellsmere, Fla., 10 miles, on condition of a tender to the Florida East Coast of an option to acquire control of the property on fair and reasonable terms. The report says: "As a rule, we believe that the public interest would be better served if such lines were operated by the trunk railroad lines with which they connect."

WESTERN PACIFIC.—May Suspend Dividend.—The management of the Western Pacific Railroad Corporation has issued to stockholders a detailed statement concerning the affairs of that company and indicating the necessity for the Western Pacific Railroad Company to pass or curtail its

preferred dividends and devote the money to improvements. The statement follows:

"The sources from which your company expects to derive its income applicable to dividends are as follows:

Sundry Government, Municipal and other bonds; Western Pacific Railroad Company and subsidiary companies; Denver & Rio Grande Western securities; stock of the Utah Fuel Company.

"Since reorganization of the Denver & Rio Grande Western, the Utah Fuel Company has paid no dividends to your company. On some of the securities of the Denver & Rio Grande Western owned by your company, interest has been paid, and we are hopeful that additional interest will be derived from other Denver & Rio Grande Western securities owned by your company. The miscellaneous securities provide an annual income of approximately \$400,000 net, but, as is well known, the chief source of our income is the 6 per cent dividend which has been declared for many years past on the preferred stock of the Western Pacific Railroad Company.

"A situation has now arisen which impels the directors of that company to either curtail or pass, for the present, the dividends on the preferred stock, all of which is owned by your company. The causes for this action are twofold, and may be summarized as follows:

"During the past year, the management of the operating company has made a thorough study of the conditions existing on the railroad, and has come to the conclusion that to conserve the value of your property, large sums of money must be expended during the next five years on improvements and betterments. Every indication points to a very considerable increase in business to and from the territory served by the Western Pacific Railroad Company and its connections, and in order to handle this prospect increase, the property must be brought up to a much higher standard than has existed previously, and must be put in a position to contend successfully with its strong competitors. In addition to this, you will realize that the Western Pacific, when constructed between 1906 and 1909, was laid with rail which, at that time, was standard and ample for its requirements. The rail has been in service for such a period that the time has been reached when, with due regard to economical operation, relaying thereof should be commenced. This rail program will extend over a period of five years. To accomplish these results, according to a most conservative budget presented by Mr. Adams, the president, and the operating officials who have been making the study, an expenditure of \$18,000,000 is required. Of this amount, \$6,000,000 is an operating charge and cannot be capitalized, as the money to do this work must be taken from earnings.

"Your directors have considered with the greatest care the question of conserving the value of your property, and in doing what in their opinion will not only conserve it, but will materially increase it, but to do this the dividends on the preferred stock of your holding company cannot be maintained at the present level. During the period of revamping the property, your directors hope to pay whatever income may be available to be so used by the holding company, and will do their utmost to maintain the dividend on the preferred stock at as high a point as is consistent with a wise management policy. It will not become apparent just what further dividends can be paid this year until the latter part of November. At that time such moneys as may be available will be ascertained and the amount of the dividend fixed.

"Your attention is called to the fact that the dividends on the preferred stock of the Western Pacific Railroad Corporation are cumulative to the extent to which the same are earned, and up to 12 per cent in excess thereof, which seems thoroughly to protect your interests."

The Western Pacific Railroad Corporation has paid dividends on the preferred stock since 1918, the rate since 1921 have been 6 per cent.

WHEELING & LAKE ERIE.—Hearing on New Directors.—The Interstate Commerce Commission has announced a hearing to be held on May 23 at Washington, before C. V. Burnside, assistant director of its Bureau of Finance, on the applications filed by officers and directors of the New York Central, Baltimore & Ohio, and New York, Chicago & St. Louis for authority to serve also as directors of the Wheeling & Lake Erie. Applications have been filed by P. E. Crowley, W. S. Hayden and A. H. Harris, of the New York Central; Daniel Willard, George M. Shriver and Newton D. Baker, of the Baltimore &

Ohio, and Walter L. Ross, of the Nickel Plate.

WICHITA FALLS & SOUTHERN.—*Operation of Line.*—The Interstate Commerce Commission has issued a certificate authorizing this company to operate under a trackage agreement over the Wichita Valley from Maple Switch to the Union Station in Wichita Falls, Tex., 3.21 miles.

WICHITA FALLS, RANGER & FORT WORTH.—*Securities.*—The Interstate Commerce Commission has authorized the issuance of \$1,000,000 common stock and \$2,000,000 5½ per cent first mortgage bonds. This financing is in connection with the reorganization of the property in the interest of the National City Bank of New York which at one time acquired all of the outstanding capital stock of the railroad and also a judgment against it after it went into the hands of receivers.

Average Price of Stocks and Bonds

	May 3	Last week	Last year
Average price of 20 representative railway stocks.	109.31	110.55	89.65
Average price of 20 representative railway bonds.	94.28	94.50	91.04

Valuation Reports

The Interstate Commerce Commission has issued final or tentative valuation reports finding the final value for rate-making purposes of the property owned and used for common-carrier purposes, as of the respective valuation dates, as follows:

Final Reports

Charleston & Western Carolina	\$9,991,825	1915
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Tentative Reports

Chicago & Illinois Western	\$1,021,607	1918
Electric Short Line	1,502,299	1920
Morgantown & Kingwood	2,708,200	1918
Little Kanawha	370,000	1918

Dividends Declared

Atlantic Coast Line.—Preferred, 2½ per cent, payable May 10 to holders of record April 27 to May 10.
Boston & Albany.—2½ per cent, quarterly, payable June 30 to holders of record May 31.
Central of New Jersey.—2 per cent, quarterly, payable May 16 to holders of record May 9.
Delaware & Hudson.—\$2.25, quarterly, payable June 20 to holders of record May 28.
Illinois Central.—Common, \$1.75, quarterly, payable June 1 to holders of record May 6.
Maine Central.—Common, \$1.00 quarterly, payable July 1 to holders of record June 15; preferred, \$1.25, quarterly, payable June 1 to holders of record May 16.
New Orleans, Texas & Mexico.—\$1.75, quarterly, payable June 1 to holders of record May 14.
Pennsylvania.—1¼ per cent, quarterly, payable May 31 to holders of record May 2.

L. M. BETTS, manager of the closed car section of the Car Service Division of the American Railway Association has addressed a circular letter to the railroads in which he says that box cars, suitable for transporting grain and food products are used too much for carrying commodities which make the cars unfit for this high-class traffic. Mr. Betts says in part: The frequency with which good, clean cars are used for loading commodities that leave the floors and sides impregnated with oils, grease or offensive odors indicates the necessity for more effective instructions and closer supervision.

Railway Officers

Executive

Harry W. Zook has been appointed president of the Steelton & Highspire, with headquarters at Steelton, Pa.

Financial, Legal and Accounting

Merle F. Harden, who has been appointed general auditor and assistant treasurer of the Florida East Coast with headquarters at St. Augustine, Fla., was born on September 20, 1881, at Ohio Pyle, Pa. He was educated at the Charlotte, N. C., high school and entered railroad service in 1898 with the Southern, at Greenville, S. C., serving in various positions until 1903, when he became traveling auditor. In January, 1912, Mr. Harden went with the Atlanta & West Point and the Western Railway of Alabama as general accountant. Following this, he entered the service

same city, to succeed H. E. Lewis, deceased.

Thomas H. Carrow, the safety specialist of the Pennsylvania, heretofore connected with the insurance department, has been promoted to the newly created position of superintendent of safety, reporting to the vice-president in charge of personnel; headquarters, Philadelphia, Pa.

The headquarters of J. L. Marquette, superintendent of the western division of the Chicago & Alton, have been moved from Kansas City, Mo., to Bloomington, Ill. G. C. Brown, trainmaster, has been appointed assistant superintendent on the Western division, with headquarters at Slater, Mo. D. J. Deasy, chief dispatcher at Bloomington, has been appointed trainmaster, succeeding J. E. Farrell, who has been granted a leave of absence.

D. Van Hecke, superintendent of the Panhandle-Indian Territory division of the Chicago, Rock Island & Pacific with headquarters at El Reno, Okla., has been appointed superintendent of the newly created Panhandle division with headquarters at Amarillo, Texas. J. Sewell, assistant to the general manager of the Second District with headquarters at El Reno, has been appointed superintendent of the newly created Indian Territory Division with headquarters at the same point.

Traffic

J. M. Francis has been appointed freight claim agent of the Lehigh & New England with office at Bethlehem, Pa., succeeding E. W. Drinker, retired.

F. L. Gannaway, general agent on the Chicago, Burlington & Quincy at Indianapolis, Ind., has been transferred to Detroit, Mich., succeeding F. C. Board, deceased.

Breckenridge Armstrong, chief rate clerk in the passenger department of the Union Pacific at Omaha, Neb., has been appointed assistant general passenger agent, with headquarters at the same point.

C. E. McMillen, soliciting freight agent of the Northern Pacific at Butte, Mont., has been promoted to general agent at the same point, succeeding J. S. Kemp, who retired under the pension rules of the company on May 1.

W. W. Morse, vice-president and general manager of the Upper Mississippi Barge Line Company, Minneapolis, Minn., has resigned to become operating manager of the Upper Mississippi division of the Inland Waterways Corporation, which will begin operation above St. Louis, Mo., this spring.



M. F. Harden

of the Illinois Central and the Central of Georgia. From 1912 to July, 1917, he became consecutively special accountant, chief traveling auditor, chief clerk to comptroller and cost accountant. In July, 1917, he was appointed auditor of disbursements and during federal control he was comptroller of the Central of Georgia Corporation. After the period of federal control he became auditor of the Central of Georgia, which position he was holding at the time of his recent appointment as general auditor and assistant treasurer of the Florida East Coast.

Operating

C. J. Blanthorn has been appointed supervisor of the wage bureau of the Long Island, with headquarters at New York, succeeding J. W. Slack, Jr., who has been appointed passenger train master, steam lines, with headquarters in the

J. J. Heron, assistant to the freight traffic manager of the Northern Pacific, with headquarters at St. Paul, Minn., has been appointed assistant general freight agent, with headquarters at the same point. **J. P. Dennis**, chief clerk to the assistant freight traffic manager at St. Paul, succeeds Mr. Heron as assistant to freight traffic manager.

Paul H. Pearson has been appointed assistant to the passenger traffic manager of the Boston & Maine with headquarters at East Cambridge, Mass. Mr. Pearson was born in Somerville, Mass., on May 22, 1890, and was educated in the Somerville High School and the Massachusetts Institute of Technology. His first railroad work was as a water boy during the summer of 1903. During spare time the following winter he learned telegraphy and during the summer of 1904 was employed as spare operator and station agent. Successive summers and other vacations he worked as spare telegraph operator, agent and towerman at various points on the system and in 1911 was made train dispatcher on the Southern division being promoted to assistant chief train dispatcher in 1917. During the years 1924 and 1925 he was several times called upon for special

been transferred to the Hannibal division, with headquarters at Hannibal, Mo.

R. A. Sheerin has been appointed general foreman of floating equipment of the Long Island, with headquarters at Richmond Hill, N. Y. Under direction of the superintendent of motive power, he will have supervision of construction, damage surveys and repair of marine equipment. The position of engineer of floating equipment is abolished.

John McFayden, master mechanic of the British Columbia district of the Canadian Pacific, with headquarters at Nelson, B. C., has been transferred to Vancouver, B. C., succeeding **W. H. Evans**, retired under pension rules of the company after 46 years' service. **Palmer S. Lindsay**, master mechanic of the Manitoba district, with headquarters at Winnipeg, Man., has been transferred to Nelson, to succeed Mr. McFayden.

Daniel J. Ayers, master mechanic of the Boston & Maine with headquarters at Woodsville, N. H., has been appointed supervisor of locomotive performance, with headquarters at Boston, Mass., succeeding **John W. McVey**, who has been appointed master mechanic, with headquarters at East Somerville, Mass. **Walter H. Ohnesorge** has been appointed master mechanic, Fitchburg-Berkshire division with headquarters at East Deerfield, Mass. **Edward J. Dwyer** has been appointed master mechanic, White Mountains-Passumpsic and Connecticut River divisions, with headquarters at Springfield, Mass.

Engineering, Maintenance of Way and Signaling

Joseph A. Andreucetti, who for the past 19 years has been assistant electrical engineer of the Chicago & Northwestern, has been appointed electrical

school, he took up a business college course and later joined the operating department of the Illinois Central where he remained from 1899 to 1903. About this time he secured a position as electrical helper on the Chicago & Northwestern. Shortly after his engaging in electrical work, he began a study of electrical engineering by taking up a correspondence course in this subject. He received several promotions in his department and in 1908 was appointed assistant electrical engineer which position he has held continuously until his recent appointment. In 1910, Mr. Andreucetti was elected secretary of the Association of Railway Electrical Engineers and has served in that capacity continuously to the present time.

Albert J. Farrelly, electrical engineer of the Chicago & Northwestern for the past 28 years, retired under pension rules after nearly 50 years of service on May 1. Mr. Farrelly was born in Meadville, Pa., in 1857. After leaving high school in 1874, he entered the employ of Kennedy & McClowry, brick manufacturers, and served as a timekeeper for two years. In 1876 he became telegraph operator with the old Metropolitan Telegraph Company with which he remained for two years. In 1878, he be-



P. H. Pearson

studies in connection with the program of discontinuing branch lines then being in progress by the Boston & Maine management, and for substitution of rail motor cars for steam service on lightly patronized runs. In February, 1926, he was again selected to assist the passenger traffic manager in an intensive survey of passenger service which resulted in the general speeding up of trains; elimination of local stops, the co-ordination of rail and motor coach service and the inauguration of the new limited trains placed in service on the Boston & Maine. Mr. Pearson has had several articles appear in the *Railway Age*, the issue of September 15, 1923, containing an article on "Methods for Increasing the Capacity of the Line" which was awarded second prize in a competition on that subject.

Mechanical

H. C. Gugler, master mechanic on the Chicago, Burlington & Quincy, with headquarters at Sheridan, Wyo., has



J. A. Andreucetti

engineer of the same road, succeeding **A. J. Farrelly**, who retired on May 1. Mr. Andreucetti was born in Chicago on May 1, 1881. After finishing high

came associated with the Chicago & Northwestern, with which company he has remained up to the present time. His first position was that of telegraph operator, which lasted two years. He then transferred to the motive power department where he served as a locomotive fireman for four years. He then returned to the operating department where he served during the years 1884-92 as station agent and telegraph operator. In 1892 he was placed in charge of the power plant at the Wells street (Chicago) passenger station, which plant was then located in the basement of the old office building at 56 Kinsie street. In this position he served for several years and in 1899 he was appointed to the position of electrical engineer in charge of electric lighting and power and of train lighting equipment. He was the first president of the Association of Railway Electrical Engineers.



A. J. Farrelly

Charles Eisele has been appointed general supervisor of bridges of the New York Central lines west of Buffalo, with headquarters at Cleveland, Ohio, succeeding **George E. Bitz**, deceased.

F. F. Hewes, division engineer on the Atchison, Topeka & Santa Fe, with headquarters at Slaton, Tex., has been appointed office engineer, with headquarters at Chicago, succeeding **J. deN. Macomb**, who has resigned effective on May 15 to become assistant to the vice president in charge of railway sales of the Inland Steel Company, Chicago. **Thomas Blair**, assistant engineer on construction of the second main track at Amarillo, Tex., has been appointed division engineer to succeed Mr. Hewes.

W. L. Connors, assistant signal engineer of the Buffalo, Rochester & Pittsburgh, has been appointed signal engineer with headquarters at Rochester, N. Y., succeeding **E. W. Kolb**, who has resigned to accept employment with the General Railway Signal Company. **C. R. Happ**, signal inspector, has been appointed signal supervisor with headquarters at Punxsutawney, Pa., succeeding **G. H. Person**, who has been transferred to Du Bois, Pa. The position of assistant signal engineer at Du Bois has been abolished.

Louis C. Winship, who has been appointed electrical engineer of the Boston & Maine, with headquarters at Boston, Mass., was born on June 1, 1879, at Winnebago, Minn. He was educated at Hamline University, St. Paul, Minn., being graduated in 1902 with the degree of Ph.B., and was graduated from the Massachusetts Institute of Technology in 1905, as an electrical engineer and with the degree of S.B. Mr. Winship went with the



L. C. Winship

Westinghouse Electric & Manufacturing Company in the same year as an engineering apprentice, and entered the railway engineering division in the fall of 1906. In 1907 and 1908 he was engaged in electric locomotive testing for the Westinghouse Company on the Pennsylvania, and in the installation of

electric operation of the New York, New Haven & Hartford, and in 1909 and 1910 was with the New Haven in connection with the operation of the electric zone. In 1911 he became electrical superintendent in charge of electrical operation of the Hoosac Tunnel on the Boston & Maine, and, in 1914, supervisor of power plants for the same road, which position he held until the time of his recent appointment to electrical engineer.

Obituary

Fred G. Hill, superintendent on the Chicago, Milwaukee & St. Paul at Spokane, Wash., from 1918 to 1925, and more recently a superintendent of employment at Seattle, Wash., died on April 22 at his home in Seattle.

William L. Ekin, chief engineer maintenance of way of the Western region of the Pennsylvania, with headquarters at Chicago, died of heart failure in his office at the Union Station, Chicago, on April 28. Mr. Ekin was born on Sep-



W. L. Ekin

tember 18, 1879, at Xenia, O., and after attending the Ohio Wesleyan University and the Case School of Applied Science he entered railway service on July 16, 1900, in the maintenance of way department of the Cincinnati division of the Pennsylvania. He held various positions on this division until September, 1905, when he became assistant engineer on the Michigan division of the Vandalia (now a part of the Pennsylvania). On May 1, 1907, Mr. Ekin was advanced to division engineer of the same division, being transferred to the St. Louis division on July 1, 1913. He was transferred to the operating department as superintendent of the Peoria division on February 11, 1918, later being shifted successively to the Michigan division, the Conemaugh division and the Philadelphia division. Mr. Ekin became general superintendent of the Northern division on October 24, 1923, and early the following year he was appointed superintendent of the Philadelphia division. On April 1, 1926, he was appointed chief engineer maintenance of way of the

Western region, a position he held until the time of his death.

S. P. Alquist, master car builder of the Delaware, Lackawanna & Western, with headquarters at Scranton, Pa., died suddenly on May 4, on a Michigan Central train while en route to Grand Rapids, Mich. The death was due to heart trouble, following an extended attack of grippe. Mr. Alquist was born on May 10, 1874, in Sweden. He was educated in the grade schools and Y. M. C. A. night schools. His first work for a railroad was with the Illinois Central as car repairer at Memphis, Tenn., in which service he began on February 4, 1895. Following that he was interchange inspector for that road from 1897 to 1900. He then became assistant general foreman of car repairs, a position he held until 1905, when he was appointed district general foreman. In 1910 he was appointed general foreman of the car department of the Cincinnati, Dayton & Hamilton, and in November, 1911, he was appointed general foreman and chief inspector of the car department of the Pere Marquette. He left that road to become superintendent of the car department of the Missouri-Kansas-Texas, returning to the Pere Marquette in 1917 as master car builder, a position he held until he was appointed master car builder of the Delaware, Lackawanna in July, 1924. He held that position until the time of his death.

Horace E. R. Wood, who retired as treasurer and assistant secretary of the Chicago & Alton on October 1, 1923, died on April 29 at Oakland, Cal., after a short illness, at the age of 72 years. Mr. Wood had completed 51 years of continuous service with the Alton at the time of his retirement. He was born on July 24, 1854, at Brooklyn, N. Y., and after attending a military school at Weston, Conn., the Weston Boarding School, the Palmer Academy at Chicago and Mrs. Wertz' School at Geneva, Ill., he entered railway service in 1872 as a clerk in the treasurer's office of the Alton at Chicago. After serving this company in various capacities in the treasurer's office Mr. Wood was elected secretary and treasurer of the Alton, the Joliet & Chicago, the Mississippi River Bridge Company and the Louisiana & Missouri on May 4, 1898, and when these companies were reorganized as the Chicago & Alton railway he was elected assistant treasurer. In 1906 he was elected treasurer of the Alton, in addition becoming assistant secretary in 1907, positions he held continuously until his retirement. During the period from December 21, 1907, to October 1, 1923, Mr. Wood also acted as assistant secretary and treasurer, as assistant treasurer, as assistant secretary and as secretary and treasurer of a group of subsidiaries of the Alton, including the Toledo, St. Louis & Western, the Kansas City, St. Louis & Chicago, the Rutland, Toluca & Northern and the Peoria Railway Terminal Company. Mr. Wood moved from Chicago to Oakland in 1924 where he remained until the time of his death.

